

PERFORMANCE RESULTS

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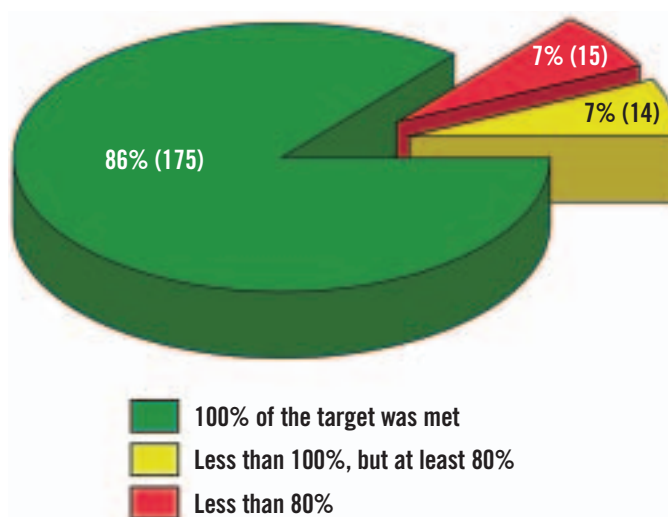
PERFORMANCE INTRODUCTION

The Performance Results section provides detailed information and an assessment of our progress for the Department's 54 program goals and 204 associated annual targets. Understanding the annual progress made toward outcome-oriented, multi-year program goals is a key indicator of whether the Department is, in turn, making progress toward its four strategic and seven general goals.

The following section is organized into seven sub-sections, each corresponding to one of the Department's seven general goals. Summary level information is provided at the start of each sub-section, and includes a tally of annual target performance, as well as current and prior year cost information. Detailed discussions of the program goals and associated annual targets that contribute to the general goal are presented with the following performance information:

- Descriptions and assessments of FY 2006 program goals and annual targets;
- Commentary for each program goal and annual target that explains the relevance of the performance results;
- Plans of action for resolving unmet annual targets;
- Supporting documentation that validates the performance results; and
- FY 2003 - FY 2005 performance results for program goals and annual targets (*where applicable).

The Department's FY 2006 annual target performance is depicted in the following chart, using the color coded-scheme described in the Program Performance section of the Management's Discussion and Analysis.



* Related prior year target performance data represents a summary of performance against similar/related target(s) from each year. As specific targets may vary annually, performance should not be interpreted as a trend of the current year target.

DETAILED PERFORMANCE

General Goal 1: Nuclear Weapons Stewardship	FY 2006 Annual Performance Targets			
Ensure that our nuclear weapons continue to serve their essential deterrence role by maintaining and enhancing safety, security, and reliability of the U.S. nuclear weapons stockpile.	<u>G-Green</u>	<u>Y-Yellow</u>	<u>R-Red</u>	<u>U-Undetermined</u>
	38	8	5	0
Program Costs (\$ in Millions): \$				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	<u>Program Goal: Directed Stockpile Work</u>	Ensure that the nuclear warheads and bombs in the United States nuclear weapons stockpile are safe, secure, and reliable.
<div>R</div>	Y	Y	Y		
<p><i>Results:</i> In FY 2006, the Department continued to ensure the overall readiness of the nuclear weapons stockpile by completing the Annual Stockpile Certification and Surety Assessment Activities, completing most of the scheduled Stockpile Maintenance and Stockpile Evaluation activities while submitting for review design data packages for the Reliable Replacement Warhead (RRW) 18-month feasibility study. In addition, the timely completion of an alteration to the B-61 warhead in FY 2006 demonstrated NNSA's Life Extension Program (LEP) refurbishment capabilities. Unmet performance was due to the cancellation of activities no longer required and delays in completing activities that support Enduring Stockpile Maintenance.</p>					

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Assure 100 percent of warheads in the Stockpile are safe, secure, reliable, and available to the President for deployment. (NA GG 1.27.01)
<div>G</div>	G	G	G	
<p><i>Results:</i> The NNSA and Defense Threat Reduction Agency successfully reconciled the nuclear weapons stockpile content and disposition plans were provided for each weapon in non-operational or non-accepted status. This is significant because it ensures the overall availability of the nuclear weapons stockpile for national security use.</p> <p><i>Supporting Documentation:</i> MRT reports; End-of-Year Reconciliation Report (OUO) (Feb 2005; Weapon Reliability Report (SRD) (May 2005); Quarterly Inventory Report (July 2005) (SFRD).</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Complete 95 percent of items supporting Enduring Stockpile Maintenance (complete 100 percent of prior-year non-completed items). (NA GG 1.27.03)
<div>Y</div>	R	Y	NA	
<p><i>Results:</i> Completed 84 percent of the items that support the Enduring Stockpile Maintenance. The major limiting factor to completing all of the current year work was a lack of safety authorization basis for four weapon systems and resources were used for other related deliverables. This maintenance is important for maintaining active nuclear weapons fully operational, if needed by the President.</p> <p><i>Supporting Documentation:</i> Milestone Reporting Tool (MRT) reports; quarterly Surveillance Policy and Integrated Requirements Council meetings; periodic site reviews; weapon-specific surveillance reviews; Production and Planning Directive; and surveillance cycle reports.</p> <p><i>Action Plan:</i> A Pantex Throughput Improvement Plan has been developed to help guide corrective actions; authorization bases for the B61 bomb and W87 warhead are completed and operations are authorized for FY 2007. The B83 bomb authorization basis is planned for the first quarter of FY 2007 and action is ongoing for authorization basis for the W88 warhead.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	Y	NA	Complete 34 percent (cumulative) of the Nuclear Weapons Council (NWC)-approved W76-1 Life Extension Program (LEP) activity (Long-term Output). (NA GG 1.27.04)
<p><i>Results:</i> This achievement is important because extending the life of the W76-1, the weapon system for Navy submarines, is on a highly success-oriented refurbishment schedule to meet DoD requirements and national security needs.</p> <p><i>Supporting Documentation:</i> MRT reports; W76-02005 PCD reflects actual first disassembly; and FSED Baseline schedule with completion statuses.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
R	G	Y	NA	Complete 36 percent (cumulative) of the Nuclear Weapons Council (NWC) approved W80-3 Life Extension Program (LEP) activity. (NA GG 1.27.05)
<p><i>Results:</i> The W80-3 LEP was cancelled by the NWC on May 10, 2006. Although the W80-3 LEP is cancelled, two weapon LEPs continue on a success-oriented refurbishment schedule to meet DoD requirements.</p> <p><i>Supporting Documentation:</i> MRT reports; PDRAAG Report from DoD/AF/NWCA; successfully conducted flight test on Sep 14, 2005; and NA-10 Phase 6.4 Authorization Letter of April 15, 2005.</p> <p><i>Action Plan:</i> The program has stopped LEP activity and is preparing for full shutdown in FY 2007.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
Y	Y	G	NA	Complete 40 percent (cumulative) of the Nuclear Weapons Council (NWC) B61-7/11 Life Extension Program (LEP) activity. (NA GG 1.27.06)
<p><i>Results:</i> Completed 37 percent (cumulative) of the planned activities. The program fell behind in certification activities even though B61-7 production milestones were met. The major of B61-11 activities continued on schedule, with a first production unit planned for Jan 2007. This progress is important to the refurbishment schedule to meet DoD requirements and national security needs.</p> <p><i>Supporting Documentation:</i> Master Schedule input and NA-10 MRT reports.</p> <p><i>Action Plan:</i> The B61-7 certification activities have been rescheduled for the first quarter of FY 2007, in coordination with the U.S. Air Force.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
R	G	NA	NA	Reduce the projected W80 warhead production costs per warhead by 0.5 percent from established validated baseline, as computed and reported annually by the W80 Life Extension Program (LEP) Cost Control Board. (NA GG 1.27.09)
<p><i>Results:</i> The W80-3 LEP was cancelled by the Nuclear Weapons Council (NWC) and the W80-3 LEP Cost Control Board has been disbanded.</p> <p><i>Supporting Documentation:</i> W80 LEP Cost Control Board approved baseline.</p> <p><i>Action Plan:</i> None for the W80-3 LEP, but a similar cost control efficiency measure is being proposed for the W76-1 LEP since such a measure is beneficial to all weapon programs.</p>				

FY06**FY05****FY04****FY03****G**

G

Y

Y

Program Goal: Science Campaign Develop improved capabilities to assess of the safety, reliability, and performance of the nuclear package of weapons without further underground testing; enhance readiness to conduct underground nuclear testing as directed by the President; and develop essential scientific capabilities and infrastructure.

Results: In FY 2006, the Science Campaign made significant progress toward improving our ability to assess the stockpile without underground nuclear testing by advancing the methodology for quantifying the uncertainties for the performance, safety, and reliability of our stockpile, by completing 60 percent of the associated testing facility and by completing the Annual Assessment Report on Underground Nuclear Test Readiness. Additionally, the Department maintained its 24-month readiness capability for restarting underground nuclear testing, if directed.

FY 2006 Annual Targets

FY06**FY05****FY04****FY03****G**

G

G

NA

Develop 40 percent (cumulative) of the Quantification of Margins and Uncertainties (QMU) methodology to provide quantitative measures of confidence in the performance, safety, and reliability of the United States (U.S.) nuclear weapons stockpile. (NA GG 1.28.01)

Results: When fully developed, this methodology will enable the Department to better quantify the uncertainty associated with the predicted level of performance, safety, and reliability of our nuclear weapons stockpile and will be a critical element for the certification of weapons without underground nuclear testing.

Supporting Documentation: Primary certification milestones completed as reported in individual reports and summarized in the NA-10 MRT.

FY06**FY05****FY04****FY03****G**

G

Y

NA

Complete 60 percent (cumulative) of the Dual-Axis Radiographic Hydrotest Facility (DARHT) to provide data required to certify the safety and reliability of the U.S. nuclear weapons stockpile (NA GG 1.28.02)

Results: This progress is important because the DARHT will enable the continued certification of weapons without underground nuclear testing.

Supporting Documentation: DARHT CD-0 report.

FY06**FY05****FY04****FY03****G**

G

G

G

Maintain a 24 month readiness to conduct an underground nuclear test as established by current NNSA policy. (NA GG 1.28.03)

Results: Maintaining the 24-month readiness means that the United States has a credible capability to test nuclear weapons, if required by the President.

Supporting Documentation: Implementation Plan

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	R	NA	Complete 75 percent of the hydrodynamic tests in accordance with the National Hydrodynamics Plan, to support the assessment of nuclear performance. (NA GG 1.28.04)
<i>Results:</i> These tests provide critical information required for the W88 and W76 Life Extension Program certifications. <i>Supporting Documentation:</i> Shot reports for the hydrodynamic tests completed (specifically, Reports # 6125 and # 3612.)				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	Y	NA	Complete 70 percent (cumulative) towards creating and measuring extreme temperature and pressure conditions for the 2013 stockpile stewardship requirement. (NA GG 1.28.05)
<i>Results:</i> This progress advances the Department's ability to create the specific temperature and pressure conditions required to effectively evaluate the nuclear stockpile in 2013 and beyond. <i>Supporting Documentation:</i> NA-10 MRT reports.				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	Achieve a \$380 thousand average annual cost per test of obtaining plutonium experimental data on the Joint Actinide Shock Physics Experimental Research (JASPER) facility to support primary certification models. (NA GG 1.28.06)
<i>Results:</i> This achievement demonstrates program efficiencies without impacting JASPER testing capabilities. <i>Supporting Documentation:</i> Memorandum from Lawrence Livermore National Laboratory.				

FY06**FY05****FY04****FY03****G****G****G****NA**

Program Goal: Engineering Campaign Provide validated engineering sciences and engineering modeling and simulation tools for design, qualification, and certification; improved surety technologies; radiation hardening design and modeling capabilities; microsystems and microtechnologies; component and material lifetime assessments; and predictive aging models and surveillance diagnostics.

Results: In providing modern tools and capabilities in engineering sciences to support the weapons complex during FY 2006, NNSA completed output analysis for National Missile Defense assets and threats, developed neutron imaging hardware, completed lifetime estimates for predominant pit types and provided an evaluation for the annual assessment on component and material aging for each weapon system.

FY 2006 Annual Targets

FY06**FY05****FY04****FY03****G****G****G****NA**

Complete 65 percent (cumulative) of the Microsystems and Engineering Sciences Applications (MESA) facility project completed (total project cost), while maintaining a Cost Performance Index of 0.9-1.15. (NA GG 1.29.01)

Results: Exceeded the target by achieving 88 percent (cumulative) completion of the Microsystems and Engineering Sciences Applications (MESA) project and the Cumulative Cost Performance Index has been maintained within targeted limits. Two of the three main facilities are now occupied and operational. By the end of 2008, MESA will provide the capability to integrate microsystems into weapon components to meet the long term needs of the stockpile and also demonstrate that the MESA project is being completed within DOE construction guidelines and best business practices.

Supporting Documentation: Monthly progress reports and DOE Project and Reporting System (PARS).

FY06**FY05****FY04****FY03****G****G****G****NA**

Complete 70 percent (cumulative) towards developing all improved surety improvements for the Life Extension Programs (LEPs) having Phase 6.3 beginning in 2010 or later, as documented in the Engineering Campaign Program Plan. (NA GG 1.29.02)

Results: This progress means that the surety improvement activities are being completed on schedule to support the 2010 Phase 6.3 target date. Achieving Phase 6.3 completion means that the Department will have the potential for enhancing LEP surety.

Supporting Documentation: Monthly progress reports and DOE Project and Reporting System (PARS).

FY06**FY05****FY04****FY03****G****G****G****NA**

Complete 32 percent (cumulative) of the delivery of lifetime assessments, predictive aging models, and surveillance diagnostics, as documented in the Engineering Campaign Program Plan. (NA GG 1.29.03)

Results: The progress made in FY 2006 means that delivery schedules are being met to support the Enhanced Surveillance Subprogram's 2016 milestone of identifying early aging concerns that could impact weapon reliability or safety, reduces the uncertainties in the assessment of stockpile health, assists in decisions for weapons refurbishment or replacement, and provides improved diagnostics and models for more predictive surveillance and assessment of the stockpile.

Supporting Documentation: NA-10 MRT reports and quarterly Enhanced Surveillance program review documents.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div>G</div>	G	G	NA	Complete 68 percent of the data sets used in developing tools and technologies to validate structural and thermal models and improve the capability for weapon assessment and qualification, in accordance with the Engineering Campaign Program Plan. (NA GG 1.29.04)
<p><i>Results:</i> Creating these data sets is a precursor to developing the tools and technologies for validating both the structural and thermal models. In the future, these models will be used to assess and qualify the Nation's nuclear stockpile.</p> <p><i>Supporting Documentation:</i> NA-10 MRT reports; annual program review documents; and various reports including Sandia Webfile Share 298932.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div>G</div>	G	G	NA	Complete 27 percent of the development of the technologies and qualification tools needed to meet nuclear survivability requirements for non-nuclear components in the Life Extension Programs (LEPs), in accordance with the Engineering Campaign Program Plan. (NA GG 1.29.05)
<p><i>Results:</i> The Nuclear Survivability Subprogram continues to develop, validate, improve, and sustain experimental and theoretical capabilities and develop radiation-hardening technologies to support the certification and effectiveness of the evolving and aging stockpile. A FY 2006 highlight is the return of the Sandia Pulse Power Reactor to in-ground storage. This work is important for meeting nuclear survivability requirements for non-nuclear components in the LEP weapons.</p> <p><i>Supporting Documentation:</i> NA-10 MRT reports.</p>				

FY06FY05FY04FY03

Y

Y

Y

NA

Program Goal: Inertial Confinement Fusion Ignition and High Yield (ICF) Campaign Develop laboratory capabilities to create and measure extreme conditions of temperature, pressure, and radiation, including thermonuclear burn conditions, approaching those in a nuclear explosion, and conduct weapons-related research in these environments.

Results: To avoid underground testing, this program provides laboratory capabilities to create and measure extreme conditions of temperature, pressure, and radiation, approaching those in a nuclear explosion. In FY 2006, the Department maintained its overall schedule for demonstration of thermonuclear ignition by 2010 in spite of mixed performance. While the National Ignition Facility construction schedule was maintained and the availability of ICF test facilities was exceeded, the fusion fuel compression measurement and polar direct drive concept validation milestones were not met and have been rescheduled for FY 2007. Now, robotic transporters are installing optics, diagnostic and mechanical equipment in modules called line replaceable units (LRUs) for the rest of the beamlines.

FY 2006 Annual Targets

FY06FY05FY04FY03

R

Y

Y

NA

Complete 73 percent (cumulative) towards demonstrating ignition (simulating fusion conditions in a nuclear explosion) at the National Ignition Facility (NIF) to increase confidence in modeling weapons performance. (NA GG 1.30.01)

Results: Completed 57 percent (cumulative) towards demonstrating ignition. Of the nine major FY 2006 milestones that track progress towards ignition, two were not completed - one measures compression of the fusion fuel and the other validates the polar direct drive concept. The two delays are not expected to impact the overall schedule for demonstrating ignition by 2010. Demonstrating ignition will increase the confidence level for the certification of weapons performance, safety, and reliability using component testing and computational predictions without underground nuclear testing.

Supporting Documentation: NA-10 MRT reports.

Action Plan: Both milestones have been rescheduled for completion by the second quarter of FY 2007 and tracked until complete.

FY06FY05FY04FY03

G

G

G

NA

Complete 87 percent (cumulative) of the construction of the 192-laser beam NIF. (NA GG 1.30.02)

Results: Exceeded the cumulative target by attaining of 88 percent completion of construction on the National Ignition Facility (NIF). This is an increase of seven percent from the FY 2005 completed cumulative percentage of 81 percent. The overall construction activities include both the NIF Construction Project and the NIF Demonstration Program. The NIF project is on track to provide a laboratory capability by the end of FY 2009 that can create and measure extreme conditions of temperature, pressure, and radiation approaching those in a nuclear explosion.

Supporting Documentation: Earned value records for NIF Project and NDP maintained by NA-162 and NIF Project Office.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	Y	R	NA	Complete 45 percent (cumulative) of the equipment fabrication to support ignition experiments at NIF (NA GG 1.30.03)
<p><i>Results:</i> Meeting this cumulative target represents a 24 percent increase in FY 2006, including the completion of three major FY 2006 milestones. The user optics and cryogenic target systems being fabricated will provide the required diagnostics capability to record critical ignition data. These fabrication activities are on schedule for completion by FY 2010.</p> <p><i>Supporting Documentation:</i> NA-10 MRT reports.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	Provide 400 days to conduct stockpile stewardship experiments, totaled for all ICF facilities. (NA GG 1.30.04)
<p><i>Results:</i> Exceeded the annual target by achieving 691 total available days for stockpile stewardship experiments at four ICF facilities (OMEGA, Z, Trident, & Nike). The target was increased from 320 days to 400 days in Jan 2006 because of a specific Congressional appropriation. The actual total available, by facility, was: OMEGA: 210; Z: 196; Trident: 151; and Nike: 134. National Nuclear Security Administration (NNSA) Science and Engineering Campaigns use the ICF facilities to obtain needed stockpile stewardship data.</p> <p><i>Supporting Documentation:</i> NA-10 MRT reports for Z facility and Email records received from managers of Trident, OMEGA, and Nike facilities.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	Y	NA	NA	Achieve an average of 11 hours per experiment required by the operational crew to prepare the Z-facility for an experiment. (NA GG 1.30.05)
<p><i>Results:</i> Exceeded the annual target by achieving an average time of 10.3 hours for the operational crew to prepare the Z facility for an experiment. Reducing the preparation time for Z-facility experiments allows more experiments runs per day, making it possible to acquire additional and/or earlier data at reduced cost.</p> <p><i>Supporting Documentation:</i> Spreadsheet maintained by the Z Accelerator Systems Operations manager that lists operational crew hours for each experimental shot.</p>				

FY06**FY05****FY04****FY03****Y****Y****Y****NA****Program Goal: Advanced Simulation and Computing (ASC)**

Campaign Provide leading edge, high-end simulation capabilities to meet weapon assessment and certification requirements, including weapon codes, weapons science, platforms, and computer facilities.

Results: In FY 2006, the Department lowered the cost of operating its Stockpile Stewardship Program (SSP) production systems, increased the computational speed to a maximum 94 trillion operations per second (teraOPS) for its individual platform computing (the target was 100 teraOPS); and made significant progress modernizing its ASC codes. High-end computer simulation capabilities are needed to support the science-based nuclear weapons complex on the road to predictive weapons capability.

FY 2006 Annual Targets**FY06****FY05****FY04****FY03****G****G****G****NA**

Completion and peer review of the initial baseline secondary code, a milestone in the Advanced Simulation and Computing Campaign Program Plan, for the development and implementation of improved models and methods into integrated weapon codes and deployment to their users. (NA GG 1.31.01)

Results: The improvement of these codes and methods are needed to support the advanced approach to stockpile certification. The completion and review of the secondary code enables the Department to integrate the code with other weapon codes, makes this code available to the end users and supports the modern code conversion by the end of FY 2015.

Supporting Documentation: Internal Program Reports.

FY06**FY05****FY04****FY03****G****G****G****NA**

Analyze 51 percent (cumulative) percentage of the 31 weapon system components, primary/secondary/ engineering system using Advanced Simulation and Computing (ASC) codes, as part of annual assessments and certifications. (NA GG 1.31.02)

Results: Achieving this cumulative target represents a FY 2006 increase of 13 percent from FY 2005 cumulative percentage. The adoption of the modern codes for improved assessment and certification of the nuclear stockpile is a critical step in eliminating the need for underground nuclear testing. The progress made in FY 2006 supports the scheduled completion year of FY 2010.

Supporting Documentation: Internal Program Reports.

FY06**FY05****FY04****FY03****Y****Y****R****NA**

Deliver a 100 trillions of operations per second (teraOPS) maximum individual platform computing capability. (NA GG 1.31.03)

Results: Although the annual target was for a single 100 teraflops platform computing capability, a programmatic decision was made to receive two platforms - a 94 teraflops classified platform accompanied by a 6 teraflops unclassified platform. This change met the computing requirements and maintains the expansion of the computing capability required to better support weapons complex users in accordance with the ASC 10-year vision.

Supporting Documentation: Internal Program Reports.

Action Plan: No further actions are needed because the substituted platforms were acceptable to the customer.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	Y	G	NA	Attain total platform capacity of 160 teraOPS, taking into consideration procurements and retirements of systems . (NA GG 1.31.04)
<p><i>Results:</i> This achievement maintains the expansion of the computing capability required to better support weapons complex users in accordance with the Advanced Simulation and Computing (ASC) 10-year vision of a capacity of 930 teraOPS by the end of FY 2016.</p> <p><i>Supporting Documentation:</i> Defense Programs (DP) Milestone Reporting Tool, Program Reports, and Quarterly Performance Report (QPR) Briefs and Program Technical Review Briefs.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	Y	NA	Achieve an average \$3.99 million per teraOPS for delivering, operating, and managing all Stockpile Stewardship Program (SSP) production systems in a given fiscal year . (NA GG 1.31.05)
<p><i>Results:</i> Achieving this target represents a decrease of \$1.71 million per teraOPS per year. This improved efficiency means that the Department has increased its SSP computing activity by thirty percent without affecting its operational and maintenance costs.</p> <p><i>Supporting Documentation:</i> Program analysis based on availability and cost data.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	<u>Program Goal: Pit Manufacturing and Certification Campaign</u>
Y	G	Y	NA	Restore the capability and some limited capacity to manufacture pits of all types required for the nuclear weapons stockpile.
<p><i>Results:</i> As the trigger of a nuclear weapon, pits along with their production and certification capabilities support urgent nuclear weapons refurbishment needs and successful Reliable Replacement Warhead (RRW) development. During FY 2006, the Pit Campaign manufactured seven W88 pits, as required, and completed major milestones to remain on schedule to meet FY 2007 W88 certification. Reduced funding and a continuing resolution were at the heart of the delay in one area of performance.</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	NA	NA	Complete 60 percent of the major milestones toward establishing a limited capability of 10 W88 pits/year at Los Alamos National Laboratory (LANL). (NA GG 1.32.01)
<p><i>Results:</i> Achieving this target represent an increase of 30 percent from FY 2005 toward establishing a limited capability of 10 W88 pits/year by reprioritizing equipment installations to ensure critical pieces of equipment were installed and remaining equipment on schedule for completion in FY 2007. Installation of the equipment mitigates single point vulnerabilities where equipment malfunctions can impact production schedule. This result is important to restoring a pit manufacturing capability to the nuclear weapons complex</p> <p><i>Supporting Documentation:</i> NA-10 MRT (PMCIPP milestones) reports.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
Y	G	R	NA	Complete 70 percent of the major milestones, documented in the Pit Manufacturing and Certification Campaign Program Plan, toward W88 Pit Certification. (NA GG 1.32.03)

Results: The Unicorn Subcritical Experiment (SCE) was completed in FY 2006. However, three Level-2 milestones covering the Armando SCE post-shot report and the completion of small-scale part machining capability were delayed due to diverting resources for the Unicorn SCE effort. This progress is an important step to restoring a certification capability to the nuclear weapons complex by the end of FY 2007.

Supporting Documentation: NA-10 MRT reports.

Action Plan: The LANL physics design subproject has established a revised physics assessment plan, with an associated set of Level-2 milestones, to compensate for the late delivery in Unicorn and small-scale sample data and to provide a decision point for the use of small-scale plutonium test data, when it will be determined if this data is required for additional confidence in the W88 Major Assembly Release. Due to the outstanding correlation between Unicorn data and predictions, we have increased confidence in the completion of the effort by the end of FY 2007.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	Complete 60 percent of the major milestones, documented in the Pit Manufacturing and Certification Campaign Program Plan, toward restoration of manufacturing capability for all pit types in the enduring stockpile. (NA GG 1.32.04)

Results: This progress represents an increase of 15 percent from FY 2005. As the National Nuclear Security Administration (NNSA) moves to development of the Reliable Replacement Warhead (RRW), this measure will be revised to focus on the RRW. This result is important to restoring a pit manufacturing capability that can support nuclear weapons for the long-term while reducing associated cost, time, and hazards.

Supporting Documentation: NA-10 Milestone Reporting Tool (MRT) reports.

FY06

G

FY05

G

FY04

Y

FY03

NA

Program Goal: Readiness Campaign Develop and deliver design-to-manufacturing capabilities to meet the evolving and urgent needs of the stockpile and support the transformation of the Nuclear Weapons Complex into an agile and more responsive enterprise with shorter cycle times and lower operating costs.

Results: The Readiness Campaign deploys critical capabilities to support the immediate and urgent nuclear weapons refurbishment needs. During FY 2006, this Campaign delivered 240 Tritium Producing Burnable Absorber Rods to the Watts-Bar Reactor to support a third run of the irradiation cycle while nearly completing the Tritium Extraction Facility.

FY 2006 Annual Targets

FY06

G

FY05

G

FY04

Y

FY03

NA

Deploy 15 critical capabilities (cumulative) to support our Directed Stockpile Work (DSW) customer's immediate and urgent nuclear weapon refurbishment needs derived from the Production Readiness Assessment Plan. (NA GG 1.33.01)

Results: Exceeded the cumulative target by deploying a cumulative 16 critical capabilities. This result is important because these critical capabilities are required for the immediate and urgent nuclear weapon refurbishment needs that are scheduled for completion by FY 2017.

Supporting Documentation: Site reporting to subprogram manager and NA-10 MRT reports.

FY06

G

FY05

G

FY04

NA

FY03

NA

Irradiate 240 Tritium-Producing Burnable Absorber Rods (cumulative) in Tennessee Valley Authority reactors to provide the capability of collecting new tritium to replace inventory for the nuclear weapons stockpile. (NA GG 1.33.02)

Results: This progress made in FY 2006 supports maintaining the required quantities of tritium required for sustaining the readiness of the nuclear weapons stockpile.

Supporting Documentation: Site reporting to subprogram manager and NA-10 MRT reports.

FY06

G

FY05

G

FY04

G

FY03

NA

Complete 96 percent of the Tritium Extraction Facility (TEF) project (total project cost), while maintaining a Cost Performance Index of 0.9 - 1.15. (NA GG 1.33.03)

Results: Exceeded the cumulative target by completing 97 percent of the TEF project within the acceptable cost performance index range. This result indicates that the project is being managed effectively and efficiently, in terms of both cost and schedule. The TEF is essential for the establishment of an assured, domestic source of tritium to meet the needs of the nuclear weapons stockpile.

Supporting Documentation: Construction project reporting and NA-10 MRT reports.

DRAFT

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	<u>Program Goal: Readiness in Technical Base and Facilities (RTBF)</u>
G	G	Y	NA	Operate and maintain National Nuclear Security Administration (NNSA) program facilities in a safe, secure, efficient, reliable, and compliant condition, including facility operating costs (e.g., utilities, equipment, facility personnel, training, and salaries); facility and equipment maintenance costs (e.g., staff, tools, and replacement parts); and environmental, safety, and health (ES&H) costs; and plan, prioritize, and construct state-of-the-art facilities, infrastructure, and scientific tools that are not directly attributable to DSW or a campaign, within approved baseline cost and schedule.
<p><i>Results:</i> Safe operations in mission essential facilities that meet comparable industry standards are needed to support critical nuclear weapons stockpile work. On behalf of nuclear material consolidation activities, RTBF successfully completed the removal of sensitive special nuclear material from Los Alamos National Laboratory Technical Area (TA)-18 in FY 2006, reducing the site's overall security posture. In addition, they completed five facilities/buildings at various sites throughout the complex.</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Mission-essential facilities are available 90 percent of the scheduled days. (NA GG 1.34.01)
G	G	G	NA	
<p><i>Results:</i> Exceeded the target by achieving 98.1 percent availability of mission-essential facilities for FY 2006. This achievement indicates that mission essential facilities are being sufficiently maintained to support critical nuclear weapons stockpile work.</p> <p><i>Supporting Documentation:</i> Reports-based Spreadsheet - facility availability for RTBF sites and detailed site reports.</p>				
<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Limit the number of Reportable Accidents/200,000 hours of work to five maximum [vs. the Bureau of Labor Statistics (BLS) standard average of 6.4]. (NA GG 1.34.02)
G	G	G	NA	
<p><i>Results:</i> Exceeded the target by achieving a reportable accident rate of 1.77 per 200,000 hours of work for FY 2006, which is less than one-third the national BLS average of 6.4 per 200,000 hours of work. This result demonstrates that the Department is consistently conducting its critical nuclear weapons stockpile work in a safe manner.</p> <p><i>Supporting Documentation:</i> Reports-based Spreadsheet - site safety for RTBF sites and detailed site reports.</p>				
<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Achieve a NNSA complex-wide aggregate Facility Condition Index (FCI) of less than 7.4 percent, as measured by deferred maintenance per replacement plant value, for all mission-essential facilities and infrastructure (the industry standard is below 5 percent). (NA GG 1.34.03)
G	G	G	NA	
<p><i>Results:</i> Exceeded the FY06 annual target by attaining a complex-wide aggregate FCI for mission-essential facilities and infrastructure of 6.7 percent, as reported in DOE's Facilities Information Management System (FIMS). This result demonstrates the NNSA continued progress towards achieving industry standards for the condition of its facilities and infrastructure.</p> <p><i>Supporting Documentation:</i> Reports-based Spreadsheet - FCI for RTBF sites and site-specific FY2006 Ten-Year Comprehensive Site Plans, Attachment F-2.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Limit to 75 percent the inventory of baselined construction projects with total estimated cost (TEC) greater than \$20M with an actual schedule performance index (SPI) of 0.9-1.15 and a cost performance index (CPI) of 0.9-1.15, as measured against approved baseline definitions. (NA GG 1.34.04)
<p><i>Results:</i> Exceeded the annual target. In FY 2006, nine of ten projects (90 percent) maintained SPI and CPI indices within the range of 0.9 to 1.15. This result demonstrates that projects are being effectively and efficiently managed within the Readiness in Technical Base and Facilities (RTBF) program.</p> <p><i>Supporting Documentation:</i> Office of Engineering and Construction Management (OECM) and NA-54 monthly Project Analysis and Reporting System (PARS) reports and individual monthly project reports.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
Y	Y	Y	NA	<u>Program Goal: Secure Transportation Asset (STA)</u> Safely and securely transport nuclear weapons, weapons components, and Special Nuclear Materials (SNM) to meet projected Department of Energy (DOE), Department of Defense (DoD), and other customer requirements.
<p><i>Results:</i> In FY 2006, STA continued to provide safe and secure transportation of nuclear weapons, nuclear weapons components, and special nuclear material. Some of the convoys supported the W76 Life Extension Program and the W62 dismantlements and retirements. Customer delays in FY 2006 reduced the total number of convoys for the year, resulting in higher average convoy costs and unused capacity. STA achieved only 91 percent of its year-end agent strength target (324 instead of 355), due to larger than expected losses. STA is revising its recruiting and retention program to improve agent strength management that will support anticipated customer requirements.</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Complete 100 percent of the shipments safely and securely without compromise/loss of nuclear weapons/components or a release of radioactive material. (NA GG 1.36.01)
<p><i>Results:</i> Successfully completed all 93 secure transportation convoys of nuclear material without incident supporting the Nuclear Security Enterprise. The achievement demonstrates the Department's ability to fully meet its customer secure transportation requirements.</p> <p><i>Supporting Documentation:</i> Office of Secure Transportation internal monitoring and reports.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
Y	NA	NA	NA	Keep the cost per convoy to less than \$1.80 million. (NA GG 1.36.02)
<p>Results: For FY 2006, the annual cost per convoy was \$2.1 million (missing the \$1.8 million target by 19 percent). This metric is directly related to the number of convoys completed - the fewer the convoys, the higher the average cost. This result illustrates the impact of customer delays to the overall cost of secure transportation. Capacity needs are forecasted and funded using the customer's transportation forecasts.</p> <p>Supporting Documentation: Program analysis based on number of convoys conducted, budget, and MRT reports.</p> <p>Action Plan: Work with customers to strengthen the forecasting of secure transportation schedules and continue to identify and implement measures to control convoy costs. Since this metric is dependent on number of convoys, increasing convoys will improve the result. Outyear targets have been pushed out one year to reach \$1.57 million by FY 2009.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
Y	G	G	NA	Complete 115 secure convoys. (NA GG 1.36.03)
<p>Results: Completed 93 convoys. Shipments were delayed for a variety of external reasons: the planned work for DOE EM was delayed until FY 2007; strike and safety shutdowns at Erwin; the workload for DoD was significantly below the forecast; and an additional Joint Testing Exercise, conducted to validate measures to meet the Design Basis Threat, stopped shipments for three weeks. This result reflects unutilized capacity that the current agent strength would have supported.</p> <p>Supporting Documentation: Shipment reports and data from TRIPS, a program convoy-tracking database.</p> <p>Action Plan: The program is working with its customers to try to more accurately forecast shipping requirements and provide alternatives/backups. Outyear convoy target numbers have been adjusted to reach 139 convoys by FY 2009.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	Have a cumulative 36 Safeguard Transporters (SGTs) in operation. (NA GG 1.36.04)
<p>Results: Achieving this target represents an increase of 3 operational transporters in FY 2006 and significant progress towards a year-end FY 2014 goal of 51 SGTs. An increase in the SGT capability supports the Secure Transportation Asset increase in mission capacity for stakeholders.</p> <p>Supporting Documentation: Quality Assurance Inspection program documents from Kansas City Site Office.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
Y	Y	G	NA	End the year with 355 Federal Agents. (NA GG 1.36.05)
<p>Results: The FY 2006 year-end Federal agent strength was 324. In FY 2006, agent gains were offset by a higher than expected 47 agent losses (retirements, resignations, transfers, etc.). This progress toward a year-end FY 2009 goal of 420 agents is important for reaching the agent strength necessary to support a forecasted increase in mission activity.</p> <p>Supporting Documentation: Program Federal Personnel database.</p> <p>Action Plan: Maintain systematic approach to advertisement, recruiting, screening, and qualification of agents to overcome fluctuations in both class size and personnel losses; out year target for agent strength have been extended by one year to reach 420 agents by FY 2009.</p>				

FY06**Y**FY05

Y

FY04

Y

FY03

NA

Program Goal: Nuclear Weapons Incident Response (NWIR)

Respond to and mitigate nuclear and radiological incidents worldwide.

Results: NWIR readily responds to and mitigates nuclear and radiological accidents and incidents worldwide. Included in the FY 2006 events were the State of the Union; Super Bowl; Winter Olympics; Marine Corp Marathon; Rolling Thunder; 26 Radiological Assistance Program (RAP) Deployments; and two Ongoing Search Operations. A shortage of equipment and personnel limited the program from achieving an even higher state of readiness.

FY 2006 Annual TargetsFY06**Y**FY05

NA

FY04

NA

FY03

NA

Achieve an Emergency Operations Readiness Index of at least 91 percent. The index measures the overall organizational readiness to respond to and mitigate radiological or nuclear incidents worldwide. (This Index is measured from 1 to 100 with higher numbers meaning better readiness--the first three quarters will be expressed as the readiness at those given points in time where as the year end will be expressed as the average readiness for the year's four quarters). (NA GG 1.37.01)

Results: Achieved a readiness index of 82 due to a shortage of critical personnel and equipment availability. This result indicated the level of readiness of the Department to respond to and mitigate nuclear and radiological accidents and incidents worldwide.

Supporting Documentation: NA-40 Emergency Operations Policy Note #10

Action Plan: An offer has been tendered and accepted for the critical hire pilot position and equipment maintenance has been scheduled for the item in need which will allow us to meet our target by the end of the first quarter of FY 2007.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	<u>Program Goal: Facilities and Infrastructure Recapitalization Program (FIRP)</u> Restore, rebuild and revitalize the physical infrastructure of the nuclear weapons complex.
G	G	G	G	
<p><i>Results:</i> Restoring, rebuilding, and revitalizing the physical infrastructure of the nuclear weapons complex results in improved facilities conditions and increased operational effectiveness and efficiency. The continued stabilization of deferred maintenance is a major FIRP accomplishment that indicates physical deterioration of the nuclear weapons complex has been arrested. Also during FY 2006, FIRP eliminated more than 2,400,000 gross square feet of excess facilities.</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Fund at least \$60 million (and 28 percent of FY 2003 deferred maintenance baseline of \$1.2 billion) in projects for elimination by FY 2009. (NA GG 1.38.01)
G	G	G	NA	
<p><i>Results:</i> Exceeded the annual target by funding the elimination of \$118 million of the FY 2003 NNSA deferred maintenance baseline. This result demonstrates progress in improving nuclear weapons complex facilities conditions by reducing the deferred maintenance backlog. This backlog is scheduled to be eliminated by the end of FY 2013.</p> <p><i>Supporting Documentation:</i> FY 2006 Facilities and Infrastructure Recapitalization Program Work Authorizations.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Fund for elimination at least 175,000 gross square feet (gsf) of excess NNSA facilities (79 cumulative percent of FY2002-FY2009 total goal of three million gsf eliminated). (NA GG 1.38.02)
G	G	G	NA	
<p><i>Results:</i> Exceeded the annual target by funding the elimination of 319,000 gsf (an 84 cumulative percent) of the three million gsf goal. This represents significant progress towards eliminating excess facility space and improving nuclear weapons complex facilities cost effectiveness. By the end of FY 2009, all excess facilities are scheduled to be eliminated.</p> <p><i>Supporting Documentation:</i> FY 2006 Facilities and Infrastructure Recapitalization Program Work Authorizations.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Achieve a NNSA complex-wide aggregate Facility Condition Index (FCI) of less than 7.4 percent, as measured by deferred maintenance per replacement plant value, for all mission-essential facilities and infrastructure (the industry standard is below 5 percent). (NA GG 1.38.03)
G	G	G	NA	
<p><i>Results:</i> Exceeded the annual target by reducing the aggregate Facility Condition Index (FCI) for all mission essential facilities and infrastructure to 6.7 percent. This achievement demonstrates progress towards improving facilities conditions and increasing operational effectiveness and efficiency.</p> <p><i>Supporting Documentation:</i> Facilities Information Management System (FIMS).</p>				

FY06**Y**FY05

Y

FY04

Y

FY03

Y

Program Goal: Defense Nuclear Security Provide protection for National Nuclear Security Administration (NNSA) personnel, facilities, nuclear weapons, and information from a full spectrum of threats, most notably from terrorism, which has become of paramount concern post the September 11, 2001, attacks in the Homeland.

Results: S&S protects NNSA personnel, facilities, nuclear weapons, and information from a full spectrum of threats. S&S attained compliance with the 2003 Design Basis Threat and established a security risk management framework to better manage and allocate security resources in FY 2006. Delays in scheduling inspections and reviews were the cause for not fully achieving two annual targets.

FY 2006 Annual Targets

FY06**Y**FY05

G

FY04

R

FY03

NA

Ensure that 70 percent of the Physical Security reviews conducted by the Office of Independent Oversight and Performance Assurance (OA) at NNSA sites receive a rating of at least “effective” (based on last OA review at each site over 6 physical security topical areas). (NA GG 1.39.01)

Results: In FY 2006, 64 percent of the reviews received a rating of at least “effective.” Although steps have been taken to improve security in a number of areas at all NNSA sites, formal inspections have not been conducted at all sites to confirm the improvements. Security inspections help the Department maintain security standards by identifying areas for improvement in the security programs across the NNSA complex.

Supporting Documentation: Latest OA inspection report for each NNSA site.

Action Plan: Schedule and conduct formal inspections in early FY 2007.

FY06**G**FY05

Y

FY04

NA

FY03

NA

Complete the processing needed to grant Q Security Clearance for federal and contractor employees in the NNSA complex, other than Headquarters in 110 days or less (does not include days for Office of Personnel Management or the Federal Bureau of Investigation to conduct background checks). (NA GG 1.39.02)

Results: In FY 2006, the completed process took an average of 97 days to complete. This achievement helps to expedite the hiring process for and improve the effectiveness of NNSA employees requiring access to classified data.

Supporting Documentation: Monthly Service Center Clearance Status Reports.

FY06**G**FY05

G

FY04

NA

FY03

NA

Complete implementation of the May 2003 Design Basis Threat (DBT) Policy at NNSA sites. (NA GG 1.39.03)

Results: This achievement helps to strengthen security at NNSA sites against post-9/11 threats and complies with secretarial direction.

Supporting Documentation: May 2003 DBT Implementation Plans and progress reports from each NNSA site.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
R	R	G	NA	Ensure that 57 percent of the Cyber Security reviews conducted by the Office of Independent Oversight and Performance Assurance (OA) at NNSA sites receive at least a rating of “effective” (based on last OA review at each site over 2 Cyber Security topical areas). (NA GG 1.39.04)
<p><i>Results:</i> In FY 2006, 41 percent of the reviews received a rating of “effective” or better. This result is important because the reviews conducted are independent of the program and the results provide expert unbiased ratings of site cyber security effectiveness that the program can use to implement corrective actions.</p> <p><i>Supporting Documentation:</i> Latest OA inspection report for each NNSA site.</p> <p><i>Action Plan:</i> The program will work with OA to schedule additional Cyber Security reviews in FY 2007 and work with the NNSA sites to implement recommendations within budgetary parameters.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	Y	NA	<u>Program Goal: Office of the Administrator</u> Create a well-managed, inclusive, responsive, and accountable organization through the strategic management of human capital; enhanced cost-effective utilization of information technology; and greater integration of budget and performance data.
<p><i>Results:</i> Cost performance is on target as the program’s cost variance is less than 10 percent from its annual baseline plan. Schedule performance is on target as key technical milestones have been completed or remain on track to meet year-end targets. This result is important because it provides the human, logistical, and IT resources needed to achieve the Department’s Defense Strategic Goals.</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	Cumulative average NNSA Program score on the OMB PART assessment indicating progress in budget performance integration and results. (NA GG 1,2.50)
<p><i>Results:</i> Exceeded the annual target by achieving an average NNSA OMB PART (Office of Management and Budget Program Assessment Rating Tool) score of 82 percent. For the FY 2006 PARTed programs, OMB has finalized its review and accepted all scores as submitted. <u>This result is important</u> because it indicates NNSA’s progress in fully achieving the President’s Management Agenda goals for budget performance integration and achieving results.</p> <p><i>Supporting Documentation:</i> OMB Program Assessment Rating Tool (PART)</p>				

General Goal 2:**Nuclear Nonproliferation**

Provide technical leadership to limit or prevent the spread of materials, technology, and expertise relating to weapons of mass destruction; advance the technologies to detect the proliferation of weapons of mass destruction worldwide; and eliminate or secure inventories of surplus materials and infrastructure usable for nuclear weapons.

FY 2006 Annual Performance Targets

<u>G-Green</u>	<u>Y-Yellow</u>	<u>R-Red</u>	<u>U-Undetermined</u>
22	5	0	0

Program Costs (\$ in Millions): \$

FY06**FY05****FY04****FY03****G**

Y

Y

G

Program Goal: Nonproliferation and Verification R&D

Develops new technologies to improve United States (U.S.) capabilities to detect and monitor nuclear weapons production, proliferation, and prohibited nuclear explosions worldwide.

Results: Nonproliferation and Verification R&D develops new technologies to improve U.S. capabilities to detect and monitor nuclear weapons production, proliferation, and testing worldwide. During FY 2006, operational space-based nuclear explosion monitoring sensors were delivered to the Air Force on a schedule that supported Air Force launch timelines. In addition, updated calibration and geophysical models to improve the nation's capability to monitor and report underground nuclear detonations were delivered.

FY 2006 Annual Targets**FY06****FY05****FY04****FY03****G**

NA

NA

NA

Progress 10 percent (cumulative) toward demonstrating the next generation of technologies and methods to detect Uranium-235 Enrichment activities. (NA GG 2.40.01)

Results: The target was achieved by completing the "Goals, Objectives and Requirement" document. This progress advances the Department towards improving the U.S. capability to detect clandestine nuclear weapons production activities.

Supporting Documentation: Classified "Goals, Objectives and Requirements" document for U-235 Production Detection

FY06**FY05****FY04****FY03****G**

NA

NA

NA

Progress 10 percent (cumulative) toward demonstrating the next generation of technologies and methods to detect Plutonium Reprocessing activities. (NA GG 2.40.02)

Results: The target was achieved by completing the "Goals, Objectives and Requirement" document. This progress advances the Department towards improving the U.S. capability to detect clandestine nuclear weapons production activities.

Supporting Documentation: Classified "Goals, Objectives and Requirements" document for Plutonium Production Detection.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Progress 10 percent (cumulative) toward demonstrating the next generation of technologies and methods to detect Special Nuclear Material (SNM) movement. (NA GG 2.40.03)

Results: The target was achieved by completing the “Goals, Objectives and Requirement” document. This result advances the Department towards improving the U.S. capability to detect the illicit transport and diversion of special nuclear material (SNM).

Supporting Documentation: "Goals, Objectives and Requirements" document for SNM Movement Detection & Radiation Sensing (OUO)

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Achieve a 90 percent on an annual index that summarizes the status of all NNSA nuclear explosion monitoring (NEM) R&D deliveries that improve the nation’s ability to detect nuclear explosions. (NA GG 2.40.04)

Results: This result indicates the Department’s is on track to deliver its NEM products within customer schedules and potential impacts on the nation’s ability to detect nuclear explosions.

Supporting Documentation: Project quarterly reports that list publications for each project and WebPMIS Summary Report No. 15.4.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	Y	NA	Achieve 100 percent (cumulative) on active research projects for which an independent R&D peer assessment of the project’s scientific quality and mission relevance has been completed during the second year of effort (and again within each subsequent three year period for those projects found to be of merit). (NA GG 2.40.05)

Results: This result is important to verify scientific quality and mission relevance of each research project.

Supporting Documentation: Project quarterly reports that list publications for each project.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	Publish 200 articles in peer reviewed professional journals/ forums representing leadership in advancing science and technology knowledge. (NA GG 2.40.06)

Results: This result demonstrates the program is a leader in advancing science and technology knowledge.

Supporting Documentation: WebPMIS Independent Review Summary Report No. 15.6, Individual project Independent Review Reports and site visits.

FY06**FY05****FY04****FY03****Y****Y****R****NA****Program Goal: Elimination of Weapons-Grade Plutonium**

Production (EWGPP) Enable the Russian Federation to permanently cease production of weapons-grade plutonium by replacing plutonium-producing nuclear reactors with fossil-fueled power plants to provide alternative sources of heat and electricity and provide for the shutdown of the reactors.

Results: Reducing the risk of nuclear proliferation and nuclear terrorism by ultimately eliminating the production of 1,200 kilograms of new Russian weapons-grade plutonium is the main focus of EWGPP. Minor schedule delays at Seversk kept EWGPP from achieving all FY 2006 annual targets but will not jeopardize its December 2008 completion. A second project in Zheleznogorsk continues on schedule for a December 2010 shutdown.

FY 2006 Annual Targets**FY06****FY05****FY04****FY03****Y****Y****Y****NA**

Complete 55 percent (cumulative) of the refurbishment of a fossil plant in Seversk, shutting down two weapons-grade plutonium production reactors. (NA GG 2.42.01)

Results: Completed 50 percent of the project to refurbish a fossil plant at Seversk. The target was missed due to delays in awarding task orders due to incomplete contracting data from the Russian Federation. The completion of the fossil plant will replace energy production capacity from two of the three Russian plutonium production reactors allowing them to be shutdown.

Supporting Documentation: The Seversk monthly progress report for September.

Action Plan: A recovery plan to improve procedures has been implemented, and a full recovery of the schedule is expected in FY 2007.

FY06**FY05****FY04****FY03****G****G****NA****NA**

Achieve a 1.0 Annual Costs Performance Index (CPI) for Seversk construction as measured by the ratio budgeted costs of work performed to actual costs of work performed. (NA GG 2.42.02)

Results: This assessment is based on I-Manage Data Warehouse data through August 2006. This result represents efficiency in constructing the Seversk fossil plant.

Supporting Documentation: The Seversk monthly progress report for September.

FY06**FY05****FY04****FY03****G****G****G****NA**

Complete 55 percent (cumulative) of the construction of a fossil plant in Zheleznogorsk, shutting down one weapons-grade plutonium production reactor. (NA GG 2.42.03)

Results: Exceeded the cumulative target by completing 11.4 percent of the project to construct a fossil plant at Zheleznogorsk. This result is important because completion of the fossil plant will replace energy production capacity from one of the three Russian plutonium production reactors allowing it to be shutdown.

Supporting Documentation: The Zheleznogorsk monthly progress report for September.

FY06**G****FY05**

G

FY04

R

FY03

Y

Program Goal: Nonproliferation and International Security

(N&IS) Prevent and counter weapons of mass destruction (WMD) proliferation by providing policy and technical support to implement and monitor transparent WMD reductions; strengthen indigenous international safeguards and export controls systems in other countries; transition WMD expertise and infrastructure to peaceful purposes; and improve international and multinational international safeguards, export control, and interdiction regimes.

Results: Global Initiatives to Prevent Proliferation (GIPP) contributes to U.S. Government efforts to counter global weapons of mass destruction proliferation and terrorist threats. In addition to completing all FY 2006 targets, GIPP successfully coordinated private sector and local government interests to launch a series of water purification and desalination projects that will redirect Libyan scientists and engineers formerly engaged in WMD production toward peaceful activities. GIPP also conducted one of the first civilian nuclear facility security engagements with China.

FY 2006 Annual Targets**FY06****G****FY05**

NA

FY04

NA

FY03

NA

Eliminate 282 metric tons (cumulative) of Russian weapons-usable Highly Enriched Uranium (HEU) which U.S. experts have confirmed as permanently removed from the Russian stockpile under the HEU Purchase Agreement. (NA GG 2.44.01)

Results: Exceeded the annual target by eliminating a cumulative 285 metric tons. This result shows that the activities of the HEU Purchase Agreement continue to be completed as planned and that the HEU is diluted so it can no longer be used in a weapon.

Supporting Documentation: Monthly summary reports of HEU and LEU shipments, amounts, and schedule.

FY06**G****FY05**

Y

FY04

G

FY03

NA

The cumulative number of the Global Initiatives to Prevent Proliferation (GIPP) target population of displaced Russian and FSU WMD experts who are currently employed in GIPP grants or long-term private sector jobs is 11,800 (and cumulative number who are employed in long-term private sector jobs resulting from NIS grants is 4,100). (NA GG 2.44.02)

Results: This result helps to prevent the migration of weapons of mass destruction expertise, to terrorists or states of concern, by redirecting displaced scientists and personnel to peaceful, sustainable civilian work.

Supporting Documentation: IPP Company survey conducted by the United States Industry Coalition (USIC), NCI quarterly narrative lab reports and IPP lab reports.

FY06**G****FY05**

G

FY04

G

FY03

NA

The cumulative percentage of non-United States Government (non-USG) (private sector and foreign government) project funding contributions obtained relative to cumulative USG Global Initiatives to Prevent Proliferation (GIPP) funding contributions is 70 percent. (NA GG 2.44.03)

Results: This result supports sustainable projects that prevent the migration of weapons of mass destruction expertise to terrorists or states of concern.

Supporting Documentation: USIC Company survey; CRADAs; NCI Lab Survey; NCI MIS database.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	Transfer five technologies to international regimes and other countries to prevent and counter Weapons of Mass Destruction (WMD) proliferation and nuclear-related terrorism. (NA GG 2.44.04)
<p><i>Results:</i> Exceeded the annual target by transferring 23 technologies. This result provides policy support to the International Atomic Energy Agency (IAEA) on verification technologies concerning countries suspected of having clandestine nuclear weapons programs.</p> <p><i>Supporting Documentation:</i> USIC Company Survey; NCI Lab Survey; NCI MIS database.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Train 1,160 international and domestic experts (e.g., IAEA inspectors, export control officers, physical protection personnel) in nonproliferation to fulfill the President's policy delineated on February 11, 2004 and implement the U.S.-sponsored UN Security Council Resolution 1540 criminalizing proliferation. (NA GG 2.44.05)
<p><i>Results:</i> Exceeded the annual target by training 1,930 experts. This result is important to fulfill the President's policy delineated on February 11, 2004 and to implement the U.S.-sponsored UN Security Council Resolution 1540 criminalizing proliferation because it educates experts in the prevention of proliferation of nuclear and nuclear-related materials, equipment and technology</p> <p><i>Supporting Documentation:</i> Attendance sign in sheets, training records and participant lists all collected and documented by monthly lab reports, periodic trip reports, and tracking systems such as the International Nonproliferation Export Control Program's AAR system.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
Y	Y	Y	Y	<u>Program Goal: International Nuclear Materials Protection and Cooperation</u> Prevent nuclear terrorism by working in Russia and other regions of concern to (1) secure and eliminate vulnerable nuclear weapons and weapons-usable material; and (2) install detection equipment at border crossings and Megaports to prevent and detect the illicit transfer of nuclear material.
<p><i>Results:</i> The risk of nuclear proliferation can be reduced by securing vulnerable nuclear sites and key transit and shipping point. In FY 2006, a cumulative total of 5,599 students were trained in Material, Control and Accounting related technologies and a cumulative total of 1,913 students were trained in Physical Protection/Protective Force related technologies. Complete attainment of the FY 2006 targets was limited only by the availability of feedstock for downblending Russian highly enriched uranium (HEU).</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Secure 175 (cumulative) buildings with weapons-usable material. (NA GG 2.46.01)
<p><i>Results:</i> This result helps to prevent the theft/diversion of vulnerable weapons usable material for use by terrorists.</p> <p><i>Supporting Documentation:</i> Various contract deliverable documents including photos, periodic site visits, and assurance reports.</p>				

FY06 G	FY05 NA	FY04 NA	FY03 NA	Complete 53 security upgrades at warhead sites. (NA GG 2.46.02)
<p><i>Results:</i> This result helps to prevent the theft/diversion of vulnerable nuclear weapons for use by terrorists.</p> <p><i>Supporting Documentation:</i> Various contract deliverable documents including photos, periodic site visits, and assurance reports.</p>				
FY06 Y	FY05 Y	FY04 Y	FY03 NA	Convert 8.6 metric tons (cumulative) of highly enriched uranium (HEU) to low enriched uranium (LEU). (NA GG 2.46.03)
<p><i>Results:</i> Converted a cumulative total of 8.4 metric tons of HEU to LEU. An unexpected reduction of feed material at Luch in the last quarter of FY 2006 prevented the Department from fully meeting the target. Converting HEU to LEU reduces the risk of theft or diversion of excess HEU.</p> <p><i>Supporting Documentation:</i> Material Consolidation and Conversion project and Down Blending Conversion Summary.</p> <p><i>Action Plan:</i> Continue to work with Rosatom to finalize new MCC agreement and RIAR Luch to increase the amount of feed material made available for blend down.</p>				
FY06 Y	FY05 Y	FY04 Y	FY03 NA	Install 114 (cumulative) Second Line of Defense (SLD) sites with nuclear detection equipment installed. (Complete a cumulative 10 Megaports.) (NA GG 2.46.04)
<p><i>Results:</i> Installed a cumulative total of 104 sites, including 6 Megaports. The annual target was missed due to delays in signing agreements and issues in several host countries. The installation of detection equipment provides host governments with the technical means to detect, deter and interdict illicit trafficking of nuclear and other radioactive materials.</p> <p><i>Supporting Documentation:</i> All sites can be verified as completed via the documentation of an Acceptance Testing Report.</p> <p><i>Action Plan:</i> Agreements with governments of the Republic of Georgia, and Kazakhstan have been signed and issues within Ukraine and Azerbaijan have been resolved, work can proceed. For Megaports, issues have been resolved and implementation is now on track and scheduled to be complete in FY 2007.</p>				
FY06 G	FY05 G	FY04 Y	FY03 NA	Achieve a \$5.5 million (cumulative) cost per metric ton to complete rapid security upgrades on Russian weapons usable nuclear material. (NA GG 2.46.05)
<p><i>Results:</i> This result represents efficiency in securing vulnerable weapons usable material from theft/diversion.</p> <p><i>Supporting Documentation:</i> Completed task order deliverables, site visits, and assurance reports.</p>				

FY06FY05FY04FY03

G

R

Y

R

Program Goal: Fissile Materials Disposition Eliminate surplus Russian plutonium and surplus United States (U.S.) plutonium and highly enriched uranium.

Results: FMD helps dispose of surplus weapons-grade fissile materials in the United States and Russia and supports U.S. national security interests by reducing the risk of nuclear proliferation and potential consequences. During FY 2006, FMD started site preparation for the U.S. Mixed Oxide Fuels (MOX) Facility, the Pit Disassembly and Conversion Facility (PDCF), and the Waste Solidification Building. In addition, FMD down blended a cumulative total of 93 MT of surplus U.S. highly enriched uranium (HEU).

FY 2006 Annual Targets

FY06FY05FY04FY03

G

Y

Y

NA

Complete 17 percent (cumulative) of the Mixed Oxide (MOX) Fuel Fabrication facility and equipment design, construction, and cold start-up activities. (NA GG 2.47.01)

Results: This result demonstrates progress toward the Department's goal of disposing of 34 metric tons of surplus U.S. weapon-grade plutonium.

Supporting Documentation: Results reported in monthly Earned Value Management System reports prepared by design contractor.

FY06FY05FY04FY03

G

R

Y

NA

Complete 24 percent (cumulative) of the design, construction, and cold start-up activities completed for the Pit Disassembly and Conversion Facility (PDCF). (NA GG 2.47.02)

Results: This result demonstrates progress toward the Department's goal of disposing of 34 metric tons of surplus U.S. weapon-grade plutonium.

Supporting Documentation: Results reported in monthly Earned Value Management System reports prepared by design contractor.

FY06FY05FY04FY03

G

G

G

NA

The cumulative amount of surplus U.S. highly enriched uranium (HEU) down-blended or shipped for down-blending is 93 metric tons. (NA GG 2.47.03)

Results: This result contributes to the Department's goal of disposing of surplus U.S. HEU.

Supporting Documentation: Results reported in monthly receipt reports provided by BWX Technologies Nuclear Products Division, Nuclear Fuel Services, and Savannah River Site.

FY06**Y****FY05**

Y

FY04

NA

FY03

NA

Program Goal: Global Threat Reduction Initiative (GTRI)

Identify, secure, remove and/or facilitate the disposition of high-risk, vulnerable nuclear and radioactive materials around the world that pose a potential threat to the United States and the international community.

Results: Technical delays and lengthy negotiations with other countries kept two GTRI targets from being achieved. Despite these issues, GTRI demonstrated progress in reducing the threat worldwide posed by nuclear and radiological materials through repatriation and other activities. During FY 2006, 45 research reactors were converted from highly enriched uranium (HEU) to low enriched uranium (LEU) fuel and 228 kilograms of HEU were returned to Russia.

FY 2006 Annual Targets**FY06****Y****FY05**

Y

FY04

Y

FY03

NA

Convert 46 (cumulative) targeted research/test reactors from highly enriched uranium (HEU) to low enriched uranium fuel (LEU). (NA GG 2.64.01)

Results: Converted a cumulative total of 45 research reactors, an additional five research reactors over the year from the Czech Republic, Netherlands, Libya, and two in the United States. The target was missed due to the Libya IRT-1 conversion, scheduled for September, slipping by one month because of a technical delay in preparations for conversion. To date, conversion of these reactors has reduced the amount of civil commerce in HEU by 250/kg per year.

Supporting Documentation: Annual letter from Argonne National Laboratory.

Action Plan: Libya IRT-1 conversion is underway. Spent HEU fuel from the Libya IRT-1 research reactor was discharged on October 4 2006. Planned completion is scheduled no later than the end of October 2006.

FY06**Y****FY05**

R

FY04

NA

FY03

NA

Repatriate 232 (cumulative) kilograms of fresh highly enriched uranium and/or spent fuel from Soviet-supplied research reactors to Russia. (NA GG 2.64.02)

Results: Removed a cumulative total of 228 kilograms of Russian-origin HEU, an additional 106 kilograms over the year from Uzbekistan, Libya, and Poland. The target was missed due to delays in reaching agreements with countries to return HEU fuel to Russia. This effort will reduce the amount of weapons-usable material around the world.

Supporting Documentation: Official NNSA Press Releases and other news reports.

Action Plan: Working with the governments of Ukraine and Vietnam at high levels to repatriate Russian-origin fresh HEU fuel.

FY06**G****FY05**

G

FY04

NA

FY03

NA

7,115 (cumulative) fuel assemblies containing U.S.-origin spent fuel returned from foreign research reactors. (NA GG 2.64.03)

Results: Exceeded the annual target by removing a cumulative total of 7,145 fuel assemblies containing U.S.-origin spent fuel, an additional 362 fuel assemblies over the year containing 72 kilograms of HEU. The recovery of foreign research reactor spent nuclear fuel works to minimize spent HEU worldwide.

Supporting Documentation: FRR SNF Scorecard (Lab report issued after receipt of shipments)

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	Y	Y	NA	Recover 13,650 U.S. excess sealed sources. (NA GG 2.64.04)
<p><i>Results:</i> Exceeded the annual target by recovering a cumulative total of 13,901 U.S. excess sealed sources, an additional 2,113 sources over the year containing 64,000 curies. The recovery of excess sealed sources reduces the amount of excess and unwanted radioactive material that could be used in radiological dispersal devices.</p> <p><i>Supporting Documentation:</i> Bi-weekly recovery report.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	Y	NA	Secure 498 (cumulative) high priority sites with vulnerable radiological material. (NA GG 2.64.05)
<p><i>Results:</i> Exceeded the annual target by securing a cumulative total of 500 sites, an additional 266 sites containing 2.7 million curies. Securing these sites reduces the risk posed by radioactive materials worldwide that could be used in radiological dispersal devices.</p> <p><i>Supporting Documentation:</i> Monthly report from the IRTR integrated contract database.</p>				

General Goal 3:**Naval Reactors**

Provide the Navy with safe, militarily effective nuclear propulsion plants and ensure their continued safe and reliable operation.

FY 2006 Annual Performance TargetsG-GreenY-YellowR-RedU-Undetermined

6

0

0

0

Program Costs (\$ in Millions): \$FY06FY05FY04FY03**G**

G

G

G

Program Goal: Naval Reactors Principally a technology program in the business of power generation for military application. The Program's development work ensures that nuclear propulsion technology provides options for maintaining and upgrading current capabilities, as well as for meeting future threats to U.S. security.

Results: During FY 2006, NR continued to provide the U.S. Navy with safe, reliable, and militarily effective nuclear propulsion plants with no adverse health or environmental impacts. The results from a new annual target indicated that the condition of NR facilities meets industry standards.

FY 2006 Annual TargetsFY06FY05FY04FY03**G**

G

G

G

Achieve 134 million miles (cumulative) of safe, reliable, militarily effective nuclear propulsion plant operation supporting National security requirements. (NA GG 3.49.1)

Results: Exceeded the annual target by completing 135.7 million miles safely steamed through June 30, 2006. The availability of safe and reliable nuclear propulsion is essential for meeting the demands of the U.S. Navy.

Supporting Documentation: Commissioned Ship Operating Reports

FY06FY05FY04FY03**G**

G

G

NA

Complete 34 percent (cumulative) of the Transformational Technology Core (TTC) reactor plant design. (NA GG 3.49.2)

Results: Next-generation propulsion plant technology will provide an energy increase to the Navy's submarines, extending the ship life by as much as 30 percent. The Naval Reactors program continues on schedule for a 2015 completion date for delivery of this capability.

Supporting Documentation: TTC Planning Estimates

FY06FY05FY04FY03**G**

G

G

G

Complete 75 percent of the next-generation aircraft carrier reactor plant design. (NA GG 3.49.3)

Results: The next-generation aircraft carrier propulsion plant technology will increase core energy, provide nearly three times the electric plant generating capability and require half of the reactor department sailor's needed as compared to today's technology. This technology, which is on schedule for a 2015 completion date, will enable the Navy to meet current forecasted operational requirements

Supporting Documentation: CVN 21 Propulsion Plant Planning Estimate.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Achieve 100 percent of Program operations that have no adverse impact on human health or the quality of the environment. (NA GG 3.49.4)

Results: A review of radiation monitoring results through September 30, 2006, confirms that no personnel have exceeded a five REM exposure this fiscal year. A REM is a unit of ionizing radiation exposure and typical background radiation levels on the Earth are about 0.360 REM per year. Safety remains the highest priority for the Naval Reactors program.

Supporting Documentation: Report RA-05, Occupational Safety, Health and Occupational Medicine Report, the Annual Environmental Monitoring Report, and Report NT-05-3, Occupational Radiation Exposure for NR Department of Energy Facilities.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Achieve a 90 percent utilization factor for operation of test reactor plants. (NA GG 3.49.5)

Results: The Naval Reactors program exceeded the annual target by achieving a utilization rate of 91 percent. A high utilization rate represents a cost-effective way of training Naval nuclear plant operators.

Supporting Documentation: Prototype Annual Activity Schedule

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Achieve a five percent annual Naval reactors complex-wide aggregate Facility Condition Index, as measured by deferred maintenance per replacement plant value for all program facilities and infrastructure. (NA GG 3.49.6)

Results: This result indicates that deferred maintenance is being properly managed such that Naval reactor facilities are safe and can reliably, effectively and efficiently support mission activities.

Supporting Documentation: Results are documented and data is collected through the DOE Facility Information Management System. The Facility Condition Index is defined by DOE Order 430.1B.

General Goal4:**Energy Security**

Improve energy security by developing technologies that foster a diverse supply of reliable, affordable, and environmentally sound energy by providing for reliable delivery of energy, guarding against energy emergencies, exploring advanced technologies that make a fundamental improvement in our mix of energy options, and improving energy efficiencies.

FY 2006 Annual Performance Targets

<u>G-Green</u>	<u>Y-Yellow</u>	<u>R-Red</u>	<u>U-Undetermined</u>
74	1	7	1

Program Costs (\$ in Millions): \$

FY06**FY05****FY04****FY03****Y**

Y

Y

G

Program Goal: Hydrogen, Fuel Cells and Infrastructure Technologies

Develop hydrogen production, storage, and delivery technologies to the point that they are cost and performance competitive and are being used by the Nation's transportation, energy, and power industries.

Results: Meeting technology and cost targets in the concurrent technology paths of hydrogen production and delivery, storage, and fuel cell power are key contributions to meeting the Hydrogen Posture Plan goals. This will ultimately provide the nation with hydrogen from diverse domestic resources, and enable its use in a clean, safe, reliable, and affordable manner in fuel cell vehicles and stationary power applications.

FY 2006 Annual Targets**FY06****FY05****FY04****FY03****R**

G

R

NA

Complete fabrication and testing of a sub-scale prototype metal hydride storage system; evaluate progress toward the 2007 target of 1.5 kilowatt-hours per kilogram (kWh/kg) (4.5 wt. %), and complete preliminary design of system with potential to meet 2010 targets (2.0 kWh/kg (6 wt. %), 1.5 kilowatt-hour per liter (kWh/L)). (EE GG 4.01.1)

Results: A sub-scale prototype has been fabricated and is being evaluated against 2007 system targets; evaluation will be completed in the 1st quarter FY 2007. A preliminary design has been completed on a storage system to meet 2010 system targets. These results are key steps towards meeting hydrogen storage targets for commercially viable hydrogen powered vehicles to ultimately reduce dependence on imported oil.

Supporting Documentation: FY 2006 Quarterly progress reports, FY 2006 annual progress reports, correspondence and presentations by United Technologies Research Center, Argonne National Laboratory and TIAX LLC.

Action Plan: A sub-scale prototype has been fabricated and is being evaluated against 2007 system targets; evaluation will be completed in the 1st quarter FY 2007.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Complete installation and 1,000 hours of testing of a refueling station; determine system performance, fuel quality and availability, and demonstrate the ability to produce 5,000 psi hydrogen from natural gas for a projected cost of \$3.00 per gallon of gasoline equivalent, (untaxed at the station, assuming commercial deployment with large equipment production volumes (e.g., 100 units/year) by 2009. (EE GG 4.01.2)
<p><i>Results:</i> The commissioning of the 110 kilogram per day fueling system at Penn State University was completed. Over a three month period, the system operated for more than 2000 hours. This system, projected to 1500 kg/day scale and large production volumes, is expected to produce hydrogen at a cost of \$3.00 per gallon of gasoline production. These activities support the Program's 2015 goal of \$2 to \$3/gge for hydrogen production.</p> <p><i>Supporting Documentation:</i> Presentation to FreedomCAR and Fuel Partnership Hydrogen Production Tech Team, February 23-24, 2006; 3Q FY2006 Quarterly Progress Report; FY 2006 Annual Progress Report.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	Y	G	NA	Operate fuel cell vehicle fleets to determine if 1,000 hour vehicle fuel cell durability, using fuel cell degradation data was achieved by industry. (EE GG 4.01.3)
<p><i>Results:</i> Fuel cell vehicles were operated to demonstrate a projected lifetime of 950 hours fuel cell durability. Durability is a critical factor in determining technology readiness of hydrogen fuel cell vehicles, and the Program's result is a key step towards achieving lifetimes that compete with gasoline internal combustion engine vehicles (5,000 hours).</p> <p><i>Supporting Documentation:</i> Fuel cell stack durability composite data product produced by National Renewable Energy Laboratory, September 26, 2006.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	DOE sponsored laboratory scale research will reduce the modeled technology cost to \$110 per kilowatt (kW) for a hydrogen-fueled 80 kW fuel cell power system. (EE GG 4.01.4)
<p><i>Results:</i> DOE-sponsored laboratory advancements in catalyst loading were incorporated into the modeled technology cost analysis by TIAX, Inc. and Directed Technologies, Inc. for an 80kW hydrogen fuel cell power system achieving the goal of \$110/kW. This accomplishment is an important step towards the 2015 target of \$30/kW.</p> <p><i>Supporting Documentation:</i> Quarterly technical progress reports and correspondences from the various researchers and the National Renewable Energy Laboratory report "BK-150-40160."</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Maintain total program direction costs in relation to total program costs in the range of 8-12 percent to demonstrate efficient and effective EERE-wide business and technical support to mission direct programs. (EE GG 4.01.5)
<p><i>Results:</i> Total program direction (including Program Support line item) costs represented 9.5% of overall appropriated budget. The Office of Energy Efficiency & Renewable Energy continues to implement business process improvement to create efficient and effective management of its R&D portfolio so that more federal dollars are available for research and development of energy technologies.</p> <p><i>Supporting Documentation:</i> Program Direction spent as provided by the Department's Standard Accounting and Reporting System.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	Y	G	NA	Complete the development of a laboratory scale distributed natural gas-to-hydrogen production and dispensing system that can produce 5,000 psi (pounds per square) hydrogen for \$3.00/gge (gallon of gasoline equivalent) (projected, untaxed) at the station in 2006. (EE GG 4.01.6)
<p><i>Results:</i> DOE-sponsored advancements in natural gas reforming were made and incorporated into the modeled technology cost analysis resulting in a hydrogen total cost of \$3.00 per kilogram. These technology advancements were confirmed by an independent panel of experts commissioned by the National Renewable Energy Laboratory, verifying that the Program is on track towards meeting long term goals that would provide viable options for reducing U.S. gasoline consumption.</p> <p><i>Supporting Documentation:</i> These technology advancements were confirmed by an independent panel of experts commissioned by the National Renewable Energy Laboratory, verifying that the Program is on track. Written document is on file.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Program Goal: Freedom Car & Vehicle Technologies
Y	Y	Y	G	Develop technologies that enable cars and trucks to become highly efficient, through improved power technologies and cleaner domestic fuels, and to be cost and performance competitive.
<p><i>Results:</i> Technical advances, such as, increased combustion efficiency (for both passenger and commercial vehicles), reductions in parasitic losses, carbon fiber cost reductions, and reductions in battery costs demonstrate progress that will enable cars and trucks to become highly efficient by means of research and development on clean power technologies, improved domestic fuel specifications, and advanced power systems.</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Reduce parasitic energy loss to 24 percent of total engine output. (EE GG 4.02.1)
<p><i>Results:</i> This program demonstrated that implementing technology advancements and utilizing better materials and designs leads to improved operating efficiencies. Manufacturers and consumers will be able to use these technologies to help the Nation reduce both energy use and greenhouse gas emissions, thus improving energy security.</p> <p><i>Supporting Documentation:</i> The Tien Duong 2006, Eaton Corporation study at Argonne National Laboratory.</p>				
<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Reduce the projected cost at high volume of a high power, 25 kilowatt (kW), light vehicle, lithium ion battery to \$750.00 per battery system. (EE GG 4.02.2)
<p><i>Results:</i> The program was able to lower the projected cost of a lithium battery system to \$750 (based on a production volume of 100,000 batteries per year). This contributes to achieving the 2010 cost goal of \$500 per 25 kW battery system while meeting hybrid electric vehicle performance requirements.</p> <p><i>Supporting Documentation:</i> A summary of preliminary results of the Johnson Controls -Sahn (JCS) cost model were presented to the United States Advanced Battery Consortium (USABC) Technical Work Group in September.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	Y	G	Achieve 41 percent brake thermal efficiency for light vehicle combustion engines and 50 percent brake thermal efficiency, while meeting EPA 2010 emission standards (0.2 grams per horsepower-hour (g/hp-hr) NO_x), for heavy vehicle combustion engines. (EE GG 4.02.3)
<p><i>Results:</i> The Vehicles Technologies Program was able to meet this target using technology advances in demonstrations at the Oak Ridge National Laboratory (ORNL) (light vehicle engine efficiency) and at Cummins Incorporated (heavy vehicle engine efficiency). These achievements will enable cars and trucks to become more efficient and cost & performance competitive, and ultimately help reduce both oil use and greenhouse gas emissions.</p> <p><i>Supporting Documentation:</i> ORNL will document their results in an annual report to DOE. Progress toward meeting the TIER 2 Bin 5 emissions standards has been presented at the 2006 SAE Powertrain & Fluid Systems Conference, DOE Advanced Combustion Engines Merit Review (May 2006), and the Diesel Engine Efficiency and Emissions Research (DEER) conference (August 2006). Achievement of 50% Brake Thermal Efficiency was documented in the Second Quarter Report of the Heavy Truck Engine Program submitted by Cummins Incorporated.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
R	G	G	G	Complete R&D on technologies, which, if implemented in high volume, could reduce the projected (i.e., modeled) bulk cost of automotive -grade carbon fiber to less than \$3.00/pound. (EE GG 4.02.4)
<p><i>Results:</i> MeadWestvaco, Oak Ridge National Laboratory and Pacific Northwest National Laboratory acquired specialized melt spinning equipment and begun to experiment with alternative lignin chemical purification approaches. They have not yet produced carbon fiber from lignin that meets the mechanical property targets for automotive grade carbon fiber. This limitation restricted the program from meeting the carbon fiber material cost target.</p> <p><i>Supporting Documentation:</i> R&D documents and memorandums located at Pacific Northwest National Laboratory.</p> <p><i>Action Plan:</i> A Cooperative Research and Development Agreement was initiated between Pacific Northwest National Laboratory and MeadWestvaco in mid-FY 2006 with the objective of improving lignin based carbon fiber properties by the end of FY 2007. In addition, a revised cost study will be conducted by Kline and Company in FY 2007 that will re-evaluate the factors of production and process variables for low cost carbon fiber production.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Maintain total program direction costs in relation to total program costs in the range of 8-12 percent to demonstrate efficient and effective EERE-wide business and technical support to mission direct programs. (EE GG 4.02.5)
<p><i>Results:</i> Total program direction (including Program Support line item) costs represented 9.5 percent of overall appropriated budget. The Office of Energy Efficiency & Renewable Energy continues to implement business process improvement to create efficient and effective management of its R&D portfolio so that more federal dollars are available for research and development of energy technologies.</p> <p><i>Supporting Documentation:</i> Program direction cost data as provided by the Department's Standard Accounting and Reporting System.</p>				

FY06FY05FY04FY03

Program Goal: Solar Improve performance of solar energy systems and reduces development, production, and installation costs to competitive levels.

G

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Results: The increase in conversion efficiency of commercial production crystalline silicon photovoltaic modules to 13.8 percent and thin-film photovoltaic (PV) modules to 11.2 percent maintains the program's technical progress. This will allow solar energy system prices to be reduced to help meet the critical national objectives of improving national energy security, providing for a cleaner environment, and ensuring continued economic growth and development.

FY 2006 Annual Targets

FY06FY05FY04FY03

Verify, using standard laboratory measurements, and a conversion efficiency of 13.8 percent of U.S. made commercial crystalline silicon PV modules. Production cost of such modules is expected to be \$1.90 per Watt. (EE GG 4.03.1)

G

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Results: In achieving the year-end target, the program achieved another milestone in reaching cost-effectiveness. The goal for the Solar America Initiative is to reduce the cost of solar electricity to \$0.05-\$0.10/kWh by 2015.

Supporting Documentation: Test results showing actual performance outputs and current-voltage curves are on file at the National Renewable Energy Laboratory.

FY06FY05FY04FY03

Develop thin-film photovoltaic (PV) modules with an 11.2 percent conversion efficiency that are capable of commercial production in the U.S. (EE GG 4.03.2)

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Results: The National Renewable Energy Laboratory (NREL), a DOE laboratory, measured a conversion efficiency rate of 11.7 percent for a commercial-capable copper-indium-gallium-sulfur-diselenide (CIGSS) thin-film PV module in September, 2006, made by Shell Solar Industries.

Supporting Documentation: Test results showing actual performance outputs and I-V curves have been made available by the National Renewable Energy Laboratory through Memorandum/Technical Report.

FY06FY05FY04FY03

Conduct advanced research on trough collectors and receivers that will lead to a reduction in the modeled cost of energy from concentrating solar power (CSP) troughs to \$0.12-\$0.14 per kilowatt-hour (kWh). (EE GG 4.03.3)

G

NA

NA

NA

Results: By advancing the receiver thermal performance and reducing the cost of the solar collector field in partnership with industry, the program has demonstrated cost of energy from CSP troughs that will support attainment of the 2012 target of \$.08-\$.10/kWh. The trough systems are well suited for large-scale power applications and the thermal storage allows dispatch-ability.

Supporting Documentation: Memorandum/Technical Report from DOE's National Renewable Energy Laboratory giving detailed descriptions of the progress, the Solar Energy Technologies Program contributions during FY 2006, and documents in the analysis used to assess the effectiveness.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Maintain program direction costs in relation to total program costs in the range of 8 to 12 percent to demonstrate efficient and effective EERE-wide business and technical support to mission direct programs. (EE GG 4.03.4)
<p><i>Results:</i> For FY 2006, the total program direction (including Program Support line item) cost was 9.5 percent of overall appropriated budget. The Office of Energy Efficiency & Renewable Energy continues to implement business process improvement to create efficient and effective management of its R&D portfolio so that more federal dollars are available for research and development of energy technologies.</p> <p><i>Supporting Documentation:</i> Program Direction spent as provided by the Department's Standard Accounting and Reporting System.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	Y	Y	Y	<u>Program Goal: Building Technologies</u> Develop cost effective tools, techniques and integrated technologies, systems and designs for buildings that generate and use energy so efficiently that buildings are capable of generating as much energy as they consume.
<p><i>Results:</i> Progress in building technologies, such as, Building America, Solid State Lighting, Appliance Standards and Test Procedures, Commercial Building Integration, and Energy Star are advancing the Building Technologies goals. This will support reaching goals that include zero energy homes by 2020, that are 70 percent more energy efficient and zero energy commercial buildings by 2025 that are 60 to 70 percent more efficient.</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Complete the research for production-ready new residential buildings that are 30 percent more efficient in three climate zones and 40 percent more efficient in one climate zone than the whole-house Building America benchmark and document in results in Technology Package Research Reports. (EE GG 4.04.1)
<p><i>Results:</i> In collaboration with the Building America teams, this target was achieved through development of technology package research reports that are 30 percent more efficient in coastal and mixed humid climate zones. This achievement advances the program towards its 2020 target of building residential homes that are 70 percent more energy efficient which leads to a reduction in greenhouse gases and energy consumption.</p> <p><i>Supporting Documentation:</i> Publications in the Federal Register.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Complete the development of one design technology package to achieve 30 percent or better energy savings, focusing on a single, high priority building type, such as, small commercial retail or office buildings, based on the technical and market assessments completed in 2005. (EE GG 4.04.2)
<p><i>Results:</i> The Department completed technology design packages for 30 percent savings in small retail buildings for a variety of U.S. climates. This progress advances the program towards the 2025 goal of commercial buildings that are 60 to 70 percent more energy efficient.</p> <p><i>Supporting Documentation:</i> Final report from Pacific Northwest National Laboratory.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	Conduct cost-shared, competitively selected research on technology to achieve 65 lumens per Watt (in a laboratory device) of white light from solid-state devices with industry, National Laboratories, and universities. (EE GG 4.04.3)

Results: Through competitively selected, cost shared research, DOE has successfully fabricated a solid state white light prototype with luminous efficacy of 79 lumens per watt, exceeding the target of 65 lumens per watt. This result supports progress for attaining the goal of 160 lumens per watt for commercial devices in 2025 that would be double the efficiency of the best lighting technologies now.

Supporting Documentation: Research reports containing the documentation are cost-shared research which is competitively selected.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	R	Appliance Standard Rulemakings: Complete analytical and regulatory steps necessary for DOE issuance of 4 rules, consistent with enacted law, to amend appliance standards and test procedures that are economically justified and will result in significant energy saving. Develop for DOE issuance notices of proposed rulemaking (NPRs) regarding energy conservation standards for electric distribution transformers, commercial unitary air conditions and heat pumps, and residential furnaces and boilers. (EE GG 4.04.4)

Results: DOE published standards required for support of Energy Policy Act of 2005 (EPACT 2005), which included commercial unitary air conditioner and heat pumps, as well as Notice of Proposed Rulemakings for distribution transformers and residential furnace and boiler standards.

Supporting Documentation: Publications in the Federal Register.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Increase market penetration of appliances (clothes washers, dishwashers, room air conditioners and refrigerators) to 38 percent to 42 percent (baseline of 30 percent, 2003 calendar year) to two percent to three percent for compact fluorescent lamps (baseline 2 percent, 2003 calendar year), and 40 percent to 45 percent for windows (baseline 40 percent, 2004). Estimated energy savings will be 0.30 quads and \$657 million in consumer utility billing savings. (EE GG 4.04.5)

Results: Through the ENERGY STAR Appliance Promotion, the program has exceeded the targets for market penetration of the appliances, compact fluorescent lamps, and windows. Estimated savings in consumer utility bills is \$797 million. This voluntary program is making America more energy efficient while helping consumers save money on their utility bills.

Supporting Documentation: Contractor's report documents the calculations and data used to achieve the target.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Maintain total program direction costs in relation to total program costs in the range of 8 to 12 percent to demonstrate efficient and effective EERE-wide business and technical support to mission direct programs. (EE GG 4.04.6)

Results: Total program direction (including Program Support line item) costs were 9.5 percent of overall appropriated budget. The Office of Energy Efficiency & Renewable Energy continues to implement business process improvement to create efficient and effective management of its R&D portfolio so that more federal dollars are available for research and development of energy technologies.

Supporting Documentation: Program Direction spent as provided by the Department's Standard Accounting and Reporting System.

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Program Goal: Wind Energy By 2012, complete program technology research and development, collaborative efforts, and provide the technical support and outreach needed to overcome barriers – energy cost, energy market rules and infrastructure, and energy sector acceptance- to enable wind energy to compete with conventional fuels throughout the nation serving and meeting the Nation's energy needs.

Results: The Wind Technology Program made progress toward the 2012 goal of reducing the cost of electricity from low wind speed technologies - land-based offshore, and in distributed wind technology. Additionally, technology acceptance activities with the states have helped to increase the amount of wind installed.

FY 2006 Annual Targets

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Low Wind Speed Technology (LWST): Annual COE target: 4.2 cents per kilowatt-hour (kWh) in offshore Class 4 winds, and 9.3 cents per kWh for offshore systems. **Distributed Wind Technology (DWT),** COE target: 11-16 cents per kWh in Class 3 winds. **Technology acceptance:** 19 states with over 100 MW wind stalled. (EE GG 4.05.1)

Results: For FY 2006, the Department exceeded its 4.2 cents per kWh target for land-based in Class 4 winds by achieving 3.9 cents per kWh; reached its target of 9.3 cents per kWh for offshore systems in Class 6 winds; reached its target of 11 cents per kWh for distributed wind technology cost of energy for commercial systems in Class 3 winds; and exceeded its 16 cents per kWh target for residential size systems in Class 3 winds by achieving 11.5 cents per kWh. However, the Department missed its technology acceptance target as only 16 states have achieved the 100 MW installation of wind. The delay was associated with moratorium on projects due to wind-radar and a number of other market issues. The Department will continue to work with state and local governments to increase the use of clean wind power.

Supporting Documentation: September 29, 2006, letter from the National Renewable Energy Laboratory.

Action Plan: The Technology Acceptance target of 19 States is expected to be met in 2007. Work will continue once the moratorium on the projects is lifted.

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Maintain total program direction costs in relation to total program costs in the range of 8-12 percent to demonstrate efficient and effective EERE-wide business and technical support to mission direct programs. (EE GG 4.05.2)

Results: Total program direction (including Program Support line item) costs were 9.5 percent of overall appropriated budget. The Office of Energy Efficiency & Renewable Energy continues to implement business process improvement to create efficient and effective management of its R&D portfolio so that more federal dollars are available for research and development of energy technologies.

Supporting Documentation: Program Direction spent as provided by the Department's Standard Accounting and Reporting System.

FY06**G****FY05**

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Program Goal: Hydropower Conduct the R&D necessary to improve hydropower operational and environmental performance, so that, hydropower generation is increased because of its affordability, abundance, reliability and environmental benefits.

Results: Program has made progress in the advancement of aerating turbines that improved dissolved oxygen concentrations, which in turn helps address a key environmental barrier to hydropower re-licensing - fish survivability. This allows the Nation to maintain its energy production diversity.

FY 2006 Annual Targets

FY06**G****FY05**

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Complete final report for operations and maintenance monitoring of large turbine test sites. (EE GG 4.06.1)

Results: The report "Performance Evaluation of the New Advanced Hydro Turbine System (AHTS) at Wanapum Dam, Columbia river, Washington" was delivered in April 2006. This report documents the impact that the new technology supported by the hydropower program can have for those operators that choose to adopt it. This will enable the hydropower industry to maintain its capacity, as the new technology overcomes a key environmental factor that often led to reduced capacity during re-licensing.

Supporting Documentation: Performance Evaluation of the New Advanced Hydro Turbine System (AHTS) at Wanapum Dam, Columbia River, Washington," April 2006 by Normandeau Associates, Inc. and John R. Skalski and Richard L. Townsend of University of Washington.

FY06**G****FY05**

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Maintain total program direction costs in relation to total program costs in the range of 8-12 percent to demonstrate efficient and effective EERE-wide business and technical support to mission direct programs. (EE GG 4.06.2)

Results: Total program direction (including Program Support line item) costs were 9.5 percent of overall appropriated budget. The Office of Energy Efficiency & Renewable Energy continues to implement business process improvement to create efficient and effective management of its R&D portfolio so that more federal dollars are available for research and development of energy technologies.

Supporting Documentation: Program Direction spent as provided by the Department's Standard Accounting and Reporting System.

FY06**FY05****FY04****FY03****Program Goal: Geothermal Technologies****G**

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Improve performance and reduce market entry costs of geothermal energy to competitive levels. In quantitative terms, the goal is to reduce the leveled cost of power generated from conventional geothermal sources from 5 to 8 cents per kWh (kilowatt-hour) in 2000 to three to five cents per kWh by 2010.

Results: Technical progress made in the Geothermal Technologies Program has increased the efficiency of energy production from conventional geothermal resources. This allows an option of increasing the diversity of the Nation's energy production supply mix. The program is in the process of phasing out, efforts have focused on making research to date available in an electronic repository.

FY 2006 Annual Targets**FY06****FY05****FY04****FY03****G**

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Develop an electronic repository which makes available via the internet, digitized copies of all Geothermal Technology Program Research Development and Deployment Technical Reports. (EE GG 4.07.1)

Results: This program is in the process of phasing out. The electronic repository will allow access to digitized copies of all Geothermal research development and deployment technical work.

Supporting Documentation: DOE website: www.osti.gov/geothermal/promo.jsp

FY06**FY05****FY04****FY03****G**

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Maintain total program direction costs in relation to total program costs in the range of 8-12 percent to demonstrate efficient and effective EERE-wide business and technical support to mission directed programs. (EE GG 4.07.2)

Results: Total program direction (including Program Support line item) costs represented 9.5 percent of overall appropriated budget. The Office of Energy Efficiency & Renewable Energy continues to implement business process improvement to create efficient and effective management of its R&D portfolio so that more federal dollars are available for research and development of energy technologies.

Supporting Documentation: Program Direction spent as provided by the Department's Standard Accounting and Reporting System.

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Program Goal: Biomass To develop bio-refinery-related technologies to the point that they are cost- and performance-competitive and are used by the Nation's transportation, energy, chemical and power industries to meet their market objectives.

Results: Advances and completions in the biomass targets maintain the technology road map goals needed for biomass products to move into the marketplace at competitive prices supporting the Presidential goal of 30 percent of the petroleum being supplied by biomass in 2030. This research, development and demonstration aimed at bringing to the market domestically produced bio-based transportation fuels, power, and products (chemicals and materials) will help reduce our dependence on foreign oil.

FY 2006 Annual Targets

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Identify at least one sugar -derived or biomass oil-derived bio-based chemical or material (among those being evaluated) that possesses sufficient potential to enter into the scaled-up developmental phase of research and development (R&D) from the previous bench-scale phase. (EE GG 4.08.1)

Results: Pilot scale hydrolysis testing was conducted to process corn fiber and extract corn fiber oil. The oil has potential as a value added product, containing high value sterols and stanols, and as a source to produce ethanol. Fermentation testing was conducted from bench-scale (4 liter) to pilot-scale (50 gallons) demonstrating the potential for deriving high-value bio-based chemicals and oils from corn fiber.

Supporting Documentation: The associated Pacific Northwest National Laboratory report.

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Complete laboratory and economic assessment of 2 different feedstocks, identifying operating conditions that link pretreatment with enzymes that could be scaled-up and have the potential of achieving the goal of \$0.125 per pound of sugar by 2007. (EE GG 4.08.2)

Results: Two different feedstocks (wheat straw and switch grass) were assessed through laboratory testing and economic analysis. These feedstocks have been identified as having the potential of reach the \$0.125 per pound sugar costs through combined pretreatment and enzymatic hydrolysis processing. This is a part of the Biomass Program's research into the breakdown of biomass into raw component sugars using a range of chemical and biological processes. The objective of the Sugar Platform is to develop the capability of biomass to produce inexpensive sugar streams that can be used to make fuels, chemicals, and other materials that are cost competitive with conventional commodities

Supporting Documentation: Pacific Northwest National Laboratory Report Action Plan

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Maintain total program direction costs in relation to total program costs in the range of 8-12 percent to demonstrate efficient and effective EERE-wide business and technical support to mission direct programs. (EE GG 4.08.3)

Results: Total program direction (including Program Support line item) costs represented 9.5 percent of overall appropriated budget. The Office of Energy Efficiency & Renewable Energy continues to implement business process improvement to create efficient and effective management of its R&D portfolio so that more federal dollars are available for research and development of energy technologies.

Supporting Documentation: Program Direction spent as provided by the Department's Standard Accounting and Reporting System.

FY06**FY05****FY04****FY03****G**

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Program Goal: Weatherization Increase the energy efficiency of dwellings occupied by low-income Americans, thereby, reducing their energy costs, while safeguarding their health and safety.

Results: The Department worked directly with the States to weatherize almost 100,000 low-income homes with DOE funding that is advancing the President's commitment to make energy more affordable for low-income consumers while reducing the nation's use of conventional fossil fuels.

FY 2006 Annual Targets

FY06**G****FY05**

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Weatherize 97,300 homes, with DOE funds, and supports the weatherization of approximately 100,000 additional homes with leveraged funds. (EE GG 4.09.1)

Results: The Department exceeded the target by weatherized 97,450 low-income homes with DOE funding and an additional 100,000 homes with funding from other sources. This advances the President's commitment to make energy more affordable for low-income consumers.

Supporting Documentation: The "Systems Approach to Grants Administration for Windows" (WinSAGA) Database

FY06**G****FY05**

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Complete planning for and initiate implementation of the new comprehensive national evaluation of the Weatherization Assistance Program. The evaluation is a multi-year task that will provide new, accurate baselines for average energy savings, benefit cost ratios, and BTU energy savings per Federal dollar expended. (EE GG 4.09.2)

Results: The program has developed an evaluation plan, established a peer review panel, and distributed survey instruments to the panel. This evaluation will help ensure weatherization activities make energy more affordable for low-income consumers.

Supporting Documentation: Revised evaluation plan entitled "National Evaluation of the Weatherization Assistance program; evaluation for program year 2006" (draft dated 3/2006).

FY06**G****FY05**

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Maintain total program direction costs in relation to total program costs in the range of 8-12 percent to demonstrate efficient and effective EERE-wide business and technical support to mission direct programs. (EE GG 4.09.3)

Results: Total program direction (including Program Support line item) costs represented 9.5 percent of overall appropriated budget. The Office of Energy Efficiency & Renewable Energy continues to implement business process improvement to create efficient and effective management of its R&D portfolio so that more federal dollars are available for research and development of energy technologies.

Supporting Documentation: Program Direction spent as provided by the Department's Standard Accounting and Reporting System.

FY06**FY05****FY04****FY03**

Program Goal: State Energy Strengthen and support the capabilities of States to promote energy efficiency and to adopt renewable energy technologies.

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Results: The State Energy Program assisted states in the developing energy efficiency and renewable energy plans and fostered clean, reliable and diverse renewable energy supplies by developing meaningful and effective energy efficiency and renewable energy programs specific to state level needs and delivery systems.

FY 2006 Annual Targets

FY06**FY05****FY04****FY03**

Achieve an average annual energy savings of 8-10 trillion source BTUs (an estimated \$50-60 million in annual energy cost savings) with DOE funds. Achieve an additional average energy savings of 26-30 trillion source BTUs (an estimated \$190-200 million in annual energy cost savings) from leveraged funds. (EE GG 4.10.1)

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Results: Based on peer reviewed methodology, the program has determined that it has provided both immediate and future reductions in energy consumption for residential consumers, state and local governments, schools, hospitals, small businesses and agriculture using DOE funds and leveraged funds to achieve estimated annual energy savings of \$50 million with DOE funds and \$190 million with leveraged funds.

Supporting Documentation: The "Systems Approach to Grants Administration for Windows" (WinSAGA) Database

FY06**FY05****FY04****FY03**

Maintain total Program Direction costs, in relation to, total program costs in the range of 8-12 percent to demonstrate efficient and effective EERE-wide business and technical support to mission direct programs. (EE GG 4.10.2)

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Results: Total program direction (including Program Support line item) costs represented 9.5 percent of overall appropriated budget. The Office of Energy Efficiency & Renewable Energy continues to implement business process improvement to create efficient and effective management of its R&D portfolio so that more federal dollars are available for research and development of energy technologies.

Supporting Documentation: Program Direction spent as provided by the Department's Standard Accounting and Reporting System.

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Program Goal: Federal Energy Management Program

Federal Energy Management Program (FEMP)/ Departmental Energy Management Program (DEMP), provide the efficiency and renewable energy-related technical assistance Federal agencies need to lead the Nation by example through the government's own actions, expressly obtaining Federal renewable energy use of by 2.5 percent by 2005 and reducing energy intensity in Federal buildings by 35 percent by 2010 (using 1985 as a baseline).

Results: The Federal Energy Management Program through technical assistance on third-party finance projects, training, technical and design assistance, and the funding of retrofit projects has supported improvements in the energy efficiency of the Federal buildings stock. As of 2005, energy intensity in Federal buildings has been reduced by 29.6 percent from the 1985 baseline. In FY 2005, renewable energy accounted for 4.7 percent of Federal facility electricity consumption, thereby exceeding the 2.5 percent goal.

FY 2006 Annual TargetsFY06

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Will achieve between \$80 and \$120 million in private sector investment through Super Energy Savings Performance Contracts and/or Utility Energy Service Contracts which is expected to result in about a 0.2 percent annual reduction in energy intensity. These projects are cost-effective resulting in a positive net present value gain for the taxpayer. (EE GG 4.13.1)

Results: The Department exceeded its target in FY 2006 as agencies were awarded \$186 million in private sector investment using the Department's Super Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESCs). This will provide an approximate 0.4 percent annual reduction in Federal building energy intensity.

Supporting Documentation: The ESPCs and UESCs.

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Provide technical and design assistance for 27 Federal projects (e.g., energy efficiency, renewable energy, operations and maintenance, distributed energy resources, combined heat and power, assessment of load and energy reduction techniques (ALERTS) and water conservation projects) which are expected to result in energy savings of about 60 billion British Thermal Units (BTUs). (EE GG 4.13.2)

Results: The Federal Energy Management Program in providing technical and design assistance for 47 energy efficiency, renewable energy and other projects, that will help attain the goal set forth in Executive Order 13123, of reducing energy intensity in Federal buildings by 35 percent in 2010, as compared to the 1985 baseline. Estimated energy savings are greater than 75 billion BTUs.

Supporting Documentation: Homeland Security Reports or memorandum from National Laboratories that provide information on each project.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Complete the selection for funding of three energy retrofit projects that will provide the required dollar savings to achieve a 20 percent return of the investment of the Departmental Energy Management Program funding. These projects will save over 12 billion, British Thermal Units (BTUs) per year. (EE GG 4.13.3)
<p><i>Results:</i> By funding four energy efficiency projects through a competitive selection process that chooses those projects with the greatest return on investment, the Department of Energy's Management Program has contributed to the overall goal of reducing the energy intensity at Department of Energy facilities.</p> <p><i>Supporting Documentation:</i> The Department's Corporate Planning System which includes detailed information for each project selected.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Maintain total Program Direction costs, in relation to, total program costs in the range of 8-12 percent to demonstrate efficient and effective EERE-wide business and technical support to mission direct programs. (EE GG 4.13.4)
<p><i>Results:</i> Total program direction (including Program Support line item) costs represented 9.5 percent of overall appropriated budget. The Office of Energy Efficiency & Renewable Energy continues to implement business process improvement to create efficient and effective management of its R&D portfolio so that more federal dollars are available for research and development of energy technologies.</p> <p><i>Supporting Documentation:</i> Program Direction spent as provided by the Department's Standard Accounting and Reporting System.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	<u>Program Goal: Industrial Technologies</u> To have partnerships with our most energy-intensive industries in strategic planning and energy-specific Research, Development & Demonstration (RD&D) to develop the technologies needed to use energy efficiently in their industrial processes and cost-effectively generate much of the energy they consume. The result of these activities will save feedstock and process energy, create domestic supply, improve the environmental performance of industry, and help America's economic competitiveness.
<p><i>Results:</i> By commercializing seven new technologies and adding 2,153 more energy intensive plants that are applying EERE technologies and services, the program has contributed to the Administration's goal of improving energy efficiency in the industrial sector.</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Commercialize three new technologies in partnership with the most energy-intensive industries. (EE GG 4.60.1)
<p><i>Results:</i> The seven new technologies commercialized included the SpryoCo TM Radiant Tube Insert, the Smart Screening System for Mining, the Isothermal Melting Technology, the Adjustable Speed Drive Technology, the Improved Magnesium Molding Process, the Three-Phase Rotary Separator Turbine, and the Dual Pressure Turbine. These commercialized technologies will improve the energy efficiency in the industrial sector.</p> <p><i>Supporting Documentation:</i> Pacific Northwest National Laboratory monthly reports and annual report.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div style="border: 1px solid black; padding: 2px; display: inline-block;">G</div>	G	G	G	An additional 200 (leading to a cumulative 8,600) energy intensive U.S. plants will apply EERE technologies and services contributing to the goal of a 20 percent reduction in energy intensity from 2002 levels by 2020. (EE GG 4.60.2)

Results: With the accomplishment of this target, there are now over 14,000 more unique plants applying energy technologies which help to reduce emissions and increase energy efficiency and productivity. The overall result of this effort will save feedstock and process energy, improve the environmental performance of these industries, and help maintain America's economic competitiveness.

Supporting Documentation: Quarterly Lawrence Berkeley National Laboratory report.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div style="border: 1px solid black; padding: 2px; display: inline-block;">G</div>	NA	NA	NA	Maintain total Program Direction costs, in relation to, total program costs in the range of 8-12 percent to demonstrate efficient and effective EERE-wide business and technical support to mission direct programs. (EE GG 4.60.3)

Results: Total program direction (including Program Support line item) costs represented 9.5 percent of overall appropriated budget. The Office of Energy Efficiency & Renewable Energy continues to implement business process improvement to create efficient and effective management of its R&D portfolio so that more federal dollars are available for research and development of energy technologies.

Supporting Documentation: Program Direction spent as provided by the Department's Standard Accounting and Reporting System.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div style="border: 1px solid black; padding: 2px; display: inline-block;">G</div>	G	Y	G	<u>Program Goal: Zero Emissions Coal-Based Electricity & Hydrogen Production</u> Create public/private partnerships to provide technology to ensure continued electricity generation and hydrogen production from the extensive U.S. fossil fuel resource (especially coal), including control technologies to permit reasonable-cost compliance with emerging regulations, and ultimately, by 2015, near zero emission plants (including carbon) that are fuel-flexible, and capable of multi-product output and efficiencies over 60 percent with coal and 75 percent with natural gas.
<i>Results:</i> During FY 2006, Fossil Energy has successfully entered into public/private partnerships, executing Research, Development and Demonstration projects while meeting its annual performance goals in all of its six technology areas with projects that performed pilot scale testing in Carbon Sequestration, constructing gas separation technologies for oxygen and hydrogen production, and improving Fuel Cell performance and reliability. These interim successes all contribute toward meeting the long term goal of providing technology to ensure continued electricity generation and hydrogen production from the extensive U.S. fossil fuel resource (especially coal).				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Conduct initial pilot scale slipstream field testing of at least one technology capable of 90% mercury removal. (FE GG 4.55.1)
<p><i>Results:</i> In the second quarter of FY06, NETL selected, under Solicitation DE-PS26-05NT42510, three Phase III projects aimed at field testing technologies capable of achieving 90% mercury control. As part of one of the awards (NT42775), the University of North Dakota Energy & Environmental Research Center initiated field testing of a technology capable of 90% mercury removal in Aug/Sept, 2006 at Kansas City Power & Light's Hawthorn Unit 5.</p> <p><i>Supporting Documentation:</i> FY06 Q4 Quarterly Report for NT42775 with UNDEERC.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Begin construction and testing of advanced gas separation technologies. In FY 2006, the Gasification Technologies program will move gas separation, including ceramic membrane, hydrogen separation, CO2 hydrate formation and ceramic membrane air separation, closer to commercialization, eventually leading to capital cost reductions of \$60-\$80 per kW from the baseline of \$1200/kW for Integrated Gasification Combined Cycle (IGCC) systems and efficiency improvements of >1 efficiency points. (FE GG 4.55.2)
<p><i>Results:</i> In 2006, the gasification program made significant progress in developing technologies for both oxygen and hydrogen separation. In the area of creating pure oxygen from air, full size ITM Oxygen modules have successfully produced 95% pure oxygen in the subscale engineering prototype facility, generating process information for further scale-up to a pre-commercial development facility of appropriate capacity. In the area of separating hydrogen from shifted, construction of 1.3 lb/day PDU is underway; the PDU will test hydrogen separation membrane performance on simulated syngas.</p> <p><i>Supporting Documentation:</i> "Development of ITM Oxygen Technology for Integration in IGCC & Other Advanced Power Generation Systems (ITM Oxygen)" Monthly Highlights Report (May 2006).</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Initiate a prototype combustor module test for large frame engines of low NOx combustion technology (trapped vortex, catalytic, lean premix, or modified diffusion flame) using simulated coal-based synthesis gas to demonstrate progress towards a 3 ppm NOx emissions goal. (FE GG 4.55.3)
<p><i>Results:</i> GE Global Research completed a prototype combustor module test for an advanced trapped vortex combustor using a simulated coal based synthesis gas at the end of the second quarter of FY 2006 (#41776). Additional combustor modules (lean pre-mix and dilute diffusion based) are scheduled for testing in FY 2006 - FY 2007. Siemens Power Generation completed a prototype combustor module test for an advanced rich catalytic-lean combustor using a simulated coal based synthesis gas at the end of the third quarter FY06 (#41891). Laboratory combustor testing completed to date has shown that the less than 3 parts per million (ppm) NOx emissions goal to be extremely challenging particularly with high hydrogen fuels and high firing temperatures. The success of these laboratory tests has provided the technological basis for realizing this emissions goal.</p> <p><i>Supporting Documentation:</i> Semi-annual and Quarterly test reports.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	NA	NA	Perform pilot-scale testing and also laboratory testing of different CO₂ capture technologies to lead to significant improvement in cost and performance, and initiate field sequestration activities within the Regional Partnerships leading to future sequestration tests. (FE GG 4.55.4)
<p><i>Results:</i> The University of Texas completed a pilot plant testing campaign to evaluate a technology that is capable of at least 90% CO₂ capture. Laboratory scale evaluation of membranes developed by Los Alamos National Laboratory and Praxair were also completed. NETL researchers completed the evaluation of solid sorbents for application to both post combustion and pre-combustion CO₂ capture. The tests results for the novel tertiary showed potential for significant improvement in cost and performance. All seven Phase II Regional Partnerships were awarded and field testing of CO₂ sequestration was initiated at the Zama Oil Field in Zama, Alberta as part of the activities under the Plains CO₂ Reduction Partnership.</p> <p><i>Supporting Documentation:</i> Proceedings of the 5th Annual Carbon Sequestration Conference, and the Office of Fossil Energy Techlines dated June 9, 2005 and June 26, 2006, respectively and Proceedings from the Regional Partnership Phase II kickoff meeting held October 12-14, 2005. Available at the website - http://www.netl.doe.gov/technologies/carbon_seq/index.htm</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	One or more Solid State Energy Conversion Alliance (SECA) Industry Teams (ITs) complete Phase I prototype validation test and evaluation against SECA Phase I minimum technical requirements and cost goals. (FE GG 4.55.5)
<p><i>Results:</i> SECA Industry Teams General Electric (GE) and Delphi completed their respective Phase I, of three phases, prototype tests and submitted the required documentation, including Prototype Test Reports and independently-audited Factory Cost Reports, in FY06. GE met the SECA minimum technical requirements and interim-progress cost target with an efficiency of 38 percent (35 to 55 percent goal) and a cost of \$724/kW (\$800/kW interim cost target). Delphi achieved an efficiency of 37% and a cost of \$761/kW. Both of these projects have been authorized to proceed into Phase II. Validation that SECA Prototype systems are capable of achieving Phase I goals ensures that the program is on track for the ultimate program goal of modular fuel cells with 10-fold cost reduction (\$400/kW) at 40-60 percent efficiency.</p> <p><i>Supporting Documentation:</i> Prototype Test and independently-audited Factory Cost Reports document prototype performance and cost, respectively. Further details and presentations for all of the SECA Industry Teams are available on the SECA website (http://www.seca.doe.gov/), especially the Fuel Cell Annual Report 2006 and Fossil Energy Techlines.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	NA	NA	Improve cell performance and reliability through reduction of area specific resistance (ASR) and interconnect reliability improvement to aid SECA ITs in achieving technical requirements and cost goals. (FE GG 4.55.6)
<p><i>Results:</i> This metric was met by the combined efforts of researchers at the Lawrence Berkeley National Laboratory (LBL) and at the Pacific Northwest National Laboratory (PNNL). LBL used a low-cost single-step infiltration method to reduce the area specific resistance (ASR) of a standard LSM/YSZ cell cathode. Even after 2000 hours of operational aging, an infiltrated cathode was still outperforming the starting level of a standard cathode. PNNL refined their coating method and validated the coating reliability under a high-temperature (800° C) dual-atmosphere (hydrogen and air environmental conditions, as well as under thermal cycling conditions. Under these harsh test conditions, the interconnect coating remained intact and achieved an acceptable projected 40,000 hr lifetime area specific resistance.</p> <p><i>Supporting Documentation:</i> "Quarterly Progress Report for SECA Core Technology Program," FY06 Third Quarter, submitted by PNNL to NETL. Progress updates from PNNL and LBL. Details and presentations are available on the SECA website (http://www.seca.doe.gov/), especially the Fuel Cell Annual Report 2006.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	Develop industry standards for the design and operation of a commercial-scale advanced hydrogen separation system, and complete screening tests of a pre-engineering scale prototype unit to validate design parameters. (FE GG 4.55.7)
<p><i>Results:</i> The standard performance objectives for the design and operation of hydrogen separation systems were established and have been included within the Hydrogen-from-Coal Program Research, Development and Demonstration Plan for the Period 2005 through 2015. The RD&D Plan will be posted on the NETL website by September 2006. Screening tests of a pre-engineering scale hydrogen production prototype unit were completed and construction of 1.3 lb/day PDU is underway; the PDU will test hydrogen separation membrane performance on simulated syngas.</p> <p><i>Supporting Documentation:</i> Hydrogen-from-Coal Program RD&D Plan at DOE's National Energy Technology Laboratory (NETL) website http://www.netl.doe.gov/technologies/hydrogen_clean_fuels/refshelf/pubs/hold/MYRDDP.pdf</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	Make go/no go decisions regarding award of cooperative agreements for all projects selected under Round 2 CCPI. (FE GG 4.55.8)
<p><i>Results:</i> Go/no-go decisions regarding award of cooperative agreements have been made for all projects selected under Round 2 CCPI. Round 2 projects will demonstrate: (1) coal gasification system advances that enhance efficiency, environmental performance and reliability, and (2) advancements that support the President's Clear Skies Initiative to reduce power plant emissions, particularly mercury, by about 70 percent by 2018, and the Global Climate Change Initiative to reduce carbon emissions growth over the next ten years.</p> <p><i>Supporting Documentation:</i> Documentation is available upon request from National Energy Technology Laboratory and includes signed cooperative agreements and correspondence from the contracting officer. Public information also available at http://www.netl.doe.gov/technologies/coalpower/cctc/r2projects.html.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	<u>Program Goal: Natural Gas Technologies</u> Provide technology and policy options capable of ensuring abundant, reliable, and environmentally sound gas supplies.
<p><i>Results:</i> New research and technology approaches developed under the DOE/NETL program will help to ensure abundant, reliable, and environmentally sound gas supplies. The successful completion of the prototype near term products and field tests for the downhole seismic receiver array, the novel sparker-coupler seismic source, and the Prototype High Pressure, High Temperature Measurement-While-Drilling Tool will help the natural gas industry provide more natural gas at economic savings to the public.</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Complete four of the prototype near-term products or field tests from the following critical technology areas: advanced drilling, advanced diagnostics/imaging, stripper-well enhancement, and gas storage. Conduct exploratory and characterization studies that confirm and/or advance development of methane hydrate exploration technologies or help assess the viability of future production scenarios. (FE GG 4.56.1)
<p><i>Results:</i> The Natural Gas Program successfully developed a geologic basin playbook, recovered a methane hydrate core sample, and completed three experimental tests: prototype down hole seismic receiver; novel sparker-coupler seismic source; and high-pressure, high-temperature, measurement-while-drilling tool. These advances will help industry to reduce costs and increase efficiency in gas exploration, production, and storage.</p> <p><i>Supporting Documentation:</i> Documented in DOE's Project Database, 'ProMIS'.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	Y	Program Goal: Oil Technology The goal of the Oil Technology program is to enhance U.S. energy security by managing and funding oil exploration and production (E&P) research and policy which results in development of domestic oil resources in an environmentally sound and safe manner.
<p><i>Results:</i> All milestones toward developing technologies to help increase domestic oil supplies were met. The success of the field applications tested for the horizontal wells in the Wilmington field, the 3D survey work, and the sliding sleeve technology will contribute toward increasing oil's economic recoverable resource base.</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	Y	Develop technologies through up to 4 projects. (FE GG 4.57.1)
<p><i>Results:</i> The Oil Program successfully evaluated the use of "sliding sleeve" technology to isolate oil producing intervals; enhanced heavy oil recovery in the Wilmington Oil Field using thermal technology in horizontal wells; employed 3D seismic techniques to monitor the use of carbon dioxide for enhance oil recovery in the Hall-Gurney Field, KS; and initiated CO2 injection as part of a 4-D seismic test in the Charleton Field, MI for improved CO2/Enhanced Oil Recovery Management. The success of these projects supports the goal of increasing the amount of economically recoverable domestic oil.</p> <p><i>Supporting Documentation:</i> Documented in the Department's Project Database, 'ProMIS'.</p>				

FY06FY05FY04FY03**Program Goal: Strategic Petroleum Reserve****R**

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Maintain operational readiness of the Strategic Petroleum Reserve to drawdown at a sustained rate of 4.4 million barrels per day for 90 days, within 15 days notice by the President.

Results: The Strategic Petroleum Reserve is the cornerstone of the U.S. energy security program. It provides the United States with strategic and economic protection against disruptions in oil supplies. The program's goal is to mitigate the Nation's energy and security vulnerabilities and to serve as the global benchmark for petroleum reserves. The Reserve's current inventory of 687.8 million barrels provides 59 days of net import protection. Assurance that the Reserve is maintained in a high state of readiness is measured by how quickly the program can respond to a Presidential direction to draw down; how much of the oil inventory in SPR storage is available; and the cost efficiency of operations.

FY 2006 Annual TargetsFY06FY05FY04FY03

Achieve maximum sustained (90 day) drawdown rate of 4.4 MMB. (FE GG 4.58.1)

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Results: At the end of FY 2006, the Strategic Petroleum Reserve's (SPR) drawdown rate was 4.4 million barrels per day. This metric reflects the drawdown rate (in barrels per day) that the Strategic Petroleum Reserve can sustain for an initial 90 days in order to distribute crude oil from underground storage sites to distribution points.

Supporting Documentation: SPR Drawdown Readiness and Capability (RECAP) Report and the Online Readiness Computerized Assessment (ORCA) System

FY06FY05FY04FY03

Achieve operating cost per barrel of capacity of \$0.201 (FE GG 4.58.2)

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Results: [REDACTED]

Supporting Documentation: [REDACTED]

Action Plan: [REDACTED]

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Program Goal: New Nuclear Generation Technologies

Develop new nuclear generation technologies that foster the diversity of the domestic energy supply through public-private partnerships that are aimed in the near-term (2014) at the deployment of advanced, proliferation-resistant light water reactor and fuel cycle technologies and in the longer-term (2025) at the development and deployment of next-generation advanced reactor and fuel cycles.

Results: The successful achievement of the associated annual targets represents significant progress toward the near term and long term aspects of this program goal. The Office of Nuclear Energy will continue to build upon these R&D activities in FY 2007 and beyond to encourage the development and deployment of nuclear energy to meet our country's need for carbon-free energy.

FY 2006 Annual TargetsFY06

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Complete Generation IV research and development activities to inform a design selection for the next generation nuclear power plant by FY 2011. (NE GG 4.14.1a)

Results: In FY 2006, the program focused on R&D activities associated with materials and fuels testing necessary for determining the design of the next generation nuclear power plant (NGNP). Successful achievement of the target moves the program closer to selecting an NGNP design by FY 2011, which is necessary to the development and deployment of next-generation advanced reactors by 2025.

Supporting Documentation: Various technical reports documenting completion and results of FY 2006 experiments, on file with the program office in Germantown, MD.

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Complete NHI research and development activities that support the commercialization decision in 2015, as required in the Department's Hydrogen Posture Plan (a presidential initiative). (NE GG 4.14.1b)

Results: In FY 2006, the program focused on R&D activities associated with thermochemical processes designed to demonstrate the viability of using heat and/or electricity from next generation nuclear energy systems to produce hydrogen at a cost competitive with other alternative fuels. Successful achievement of the target directly contributes to the goals of the Department's Hydrogen Posture Plan, and contributes to the design of the next generation nuclear power plant.

Supporting Documentation: Various technical reports documenting completion and results of FY 2006 experiments, on file with the program office in Germantown, MD.

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Complete research and development activities that allow the AFCI program to support the Secretary of Energy's determination of the need for a second geologic repository for spent nuclear fuel by FY 2008. (NE GG 4.14.1c)

Results: In FY 2006, the program focused on R&D activities associated with advanced separations and fuels testing and initiating conceptual design work on an advanced fuel cycle facility. Successful achievement of the target increases our understanding of the nuclear fuel cycle, and will significantly contribute to the Department's FY 2008 decision on whether to build a second geologic repository for high level nuclear waste. These activities also contribute to the Global Nuclear Energy Partnership (GNEP), which seeks to enable expanded use of economical, carbon-free nuclear energy using a nuclear fuel cycle that enhances energy security while promoting non-proliferation.

Supporting Documentation: Advanced Fuel Cycle Technology Options for Repository Optimization 2006 draft report on file with the Office of Advanced Fuel Research and Development in Germantown, MD.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div>G</div>	G	G	Y	Complete engineering and licensing demonstration activities necessary to implement the NP 2010 program in accordance with the principles of project management, to help ensure that program performance goals are achieved on schedule and within budget. (NE GG 4.14.2)
<p><i>Results:</i> In FY 2006, the program focused on activities associated with achieving NRC certification of two advanced nuclear reactor designs, and the review and certification of industry baselines for combined Construction and Operating Licenses (COLs) for new nuclear power plants. Achievement of the annual target moves the program closer toward enabling an industry decision to deploy new nuclear power plants by 2010.</p> <p><i>Supporting Documentation:</i> Reports on continuous project management oversight and schedule and progress monitoring; earned value management data and progress reports; detailed analysis of COL project restructuring proposals and the associated revised baselines; and NE senior management coordination meetings with the utility and reactor vendors project management.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div>G</div>	NA	NA	NA	Maintain total administrative overhead costs in relation to total program costs of less than 8 percent. (Baseline for administrative overhead rate is currently being validated). (NE GG 4.14.3)
<p><i>Results:</i> Achievement of the annual target establishes the baseline for FY 2007 and beyond for improving R&D program management efficiency. Further, the creation of a common approach for calculating total administrative overhead costs in applied R&D programs within the Department will allow some measure of comparability among program offices.</p> <p><i>Supporting Documentation:</i> Performance is captured in Approved Funding Plans for FY 2006 and in Monthly Performance and Finance Reports</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	<u>Program Goal: National Nuclear Infrastructure</u>
<div>G</div>	G	G	G	Maintain, enhance, and safeguard the national nuclear infrastructure to meet the Nation's energy, environmental, medical research, space exploration, and national security needs.
<p><i>Results:</i> The successful achievement of this program goal indicates the continued strengthening of the national nuclear infrastructure, which is comprised of the Idaho National Laboratory, and facilities at Oak Ridge National Laboratory and Los Alamos National Laboratory. This infrastructure is vital to the success of the Department's nuclear energy R&D efforts, and supports the missions of other federal agencies, including NASA.</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div>G</div>	G	G	Y	Maintain operability of Radiological Facilities Management and Idaho Facilities Management-funded facilities to enable accomplishment of Nuclear Energy, other DOE and Work-for-Others milestones by achieving a Facility Operability Index of 0.9. (NE GG 4.17.1)
<p><i>Results:</i> This target focuses on essential infrastructure and associated activities that represent key indicators critical to maintaining an effective infrastructure. Successful achievement of this annual target represents an assurance that the Department's unique nuclear infrastructure, required for advanced nuclear energy technology research and development, is available to support national priorities.</p> <p><i>Supporting Documentation:</i> End of year reports to the IFM Headquarters Team Leader from Field IFM Program Managers.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div>G</div>	G	G	G	Install all physical protective system upgrades outlined in the approved May 2003 Design Basis Threat (DBT) Implementation Program Management Plan that remains consistent with the requirements of the 2005 DBT. (NE GG 4.17.2)

Results: In FY 2006, the program focused on safeguards and security activities at Idaho National Laboratory, including conceptual design on security upgrades for the Materials and Fuels Complex (MFC). Successful achievement of the target helps ensure that the Department's critical nuclear infrastructure, required for advanced nuclear energy technology research and development, is available to support national priorities.

Supporting Documentation: Monthly status reports from the Idaho Operations Office.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div>G</div>	G	G	G	Complete activities to enhance the nation's nuclear education infrastructure by providing financial support to universities for facility and reactor modernization, and to students to enable the pursuit of careers in nuclear energy-related fields; through these activities, DOE is demonstrating its commitment to the development of nuclear technology for the Nation. (NE GG 4.17.3)

Results: In FY 2006, the program focused on activities associated with the solicitation, peer review and awards for Office of Nuclear Energy grant programs. Funds were issued to all award recipients to support nuclear education activities. Successful achievement of the target significantly contributes to enhancing the nation's nuclear education infrastructure to support the future development of nuclear technology.

Supporting Documentation: Signed funding letters and Notice of Financial Assistance Awards (NFAA) instruments.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div>U</div>	G	G	Y	Consistent with safe operations, achieve cumulative variance of less than 10 percent from cost and schedule baselines for the Reactor Technology Complex (RTC) and the Materials and Fuels Complex (MFC). (NE GG 4.17.4)

Results: The result for this measure is undetermined because the data was not available at the time of this report. The FY 2006 performance for this measure will be reported in the FY 2007 Performance and Accountability Report.

Supporting Documentation: Idaho Facilities Management Infrastructure Program Monthly Reports.

Action Plan: The FY 2006 performance will be reported in the FY 2007 Performance and Accountability Report under the section "Status of Unmet/Undetermined FY 2006 Performance Targets."

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Program Goal: Electricity Delivery and Energy Reliability

Electricity Delivery and Energy Reliability: Lead national efforts to modernize the electric grid, enhance security and reliability of the energy infrastructure, and facilitate recovery from disruptions to the energy supply.

Results: In FY 2006, the successful operation of the superconducting cable on the electric grid; the deployment of real-time measuring units and archiving and analysis locations on the Eastern Interconnect; the commissioning of three pioneering storage projects; and the development of a packaged Combined Heat and Power (CHP) system were all significant accomplishments needed to modernize the Nation's electric grid. Through this program, the Department also contributed to the Energy Policy Act with through analysis and studies, and improved energy infrastructure emergency response capabilities.

FY 2006 Annual TargetsFY06FY05FY04FY03

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Operate a first-of-a-kind superconductive power line on the electric grid for 240 hours. (OE GG 4.12.1)

Results: By August 2006, operation of the superconductive power line on the electric grid exceeded the 240 hours specified in OE's annual performance target. The cable was installed in the American Electric Power's Columbus, Ohio electricity system, and provided innovative, first-of-a-kind, superconducting power to customers.

Supporting Documentation: High Temperature Superconducting Underground Cable Annual Report.

FY06FY05FY04FY03

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Facilitate the installation and operation of 30 additional measurement units and 2 additional archiving and analysis locations in a real-time measurement network, for a cumulative total of 80 measuring units and 8 archiving and analysis locations. (OE GG 4.12.2)

Results: In partnership with the Tennessee Valley Authority (TVA), the North American Electric Reliability Council (NERC), and the Consortium for Electric Reliability Technology Solutions (CERTS), the program installed over 30 additional measurement and 2 additional archiving units in the Eastern Interconnection region. This has improved situational awareness and has provided real-time visibility of the system over wide areas of the country.

Supporting Documentation: Progress Report: Contributions by the Pacific Northwest National Laboratory (PNNL) to the U.S. Department of Energy (DOE) Transmission Reliability Program as part of the Consortium for Electric Reliability Technology Solutions (CERTS)."

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	R	G	NA	Commission three pioneering energy storage systems in collaboration with the Control Electric Company (CEC) and New York State Energy Research and Development Authority (NYSERDA) and produce preliminary reports using collected technical and economic data. (OE GG 4.12.3)

Results: All three pioneering energy storage systems were completed during FY06. In November, 2005, the Gaia energy storage system was commissioned through a joint initiative between DOE and the New York State Energy Research and Development Authority (NYSERDA); in March, 2006, a Beacon flywheel energy storage system was commissioned at test facility in San Ramon, California in a joint venture between DOE and the California Energy Commission; in June, 2006, a Beacon flywheel energy storage system was commissioned in Amsterdam, New York, again, in a joint initiative between DOE and NYSERDA.

Supporting Documentation: NYSERDA Project Director and Sandia Project Director E-mails; Report # EX9648-040606, Monitoring Report: Delaware County Electric Cooperative Energy Storage Demonstration Project, July 2005 - Mar 2006; Report # EX9648-061506, Quarterly Report: Delaware County Electric Cooperative Energy Storage Demonstration Project, Mar 2006 - June 2006; FY06 Commissioning and Initial Technical and Economic Data Collection on Three Pioneering Energy Storage System Projects in Collaboration with the CEC and NYSERDA.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	NA	NA	Maintain total Research and Development Program Direction costs in relation to total Research and Development costs at less than 12% . (OE GG 4.12.4)

Results: During FY 2006, OE surpassed its target by maintaining its total program direction funding relative to research and development (R&D) funding at 5 percent using a combination of competitive contracting, competitive sourcing, and leveraging limited resources with DOE corporate resources. Lowering overhead means that more dollars go directly to conducting research and developing technologies aimed at increasing the reliability and efficiency of our national electrical grid.

Supporting Documentation: OE's Official Spreadsheet of R&D Program Direction vs. R&D Program Funding.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	NA	NA	Develop one packaged CHP system which operates at a 70+% efficiency. (OE GG 4.12.5)

Results: The packaged CHP system installed at the Dell Children's Medical Center in Austin, Texas achieved a 73% (HHV)/ 80% (LHV) efficiency level in September, 2006. CHP systems capture and utilize the heat that otherwise would be rejected in traditional separate generation of electric and mechanical energy, achieving a much greater total efficiency.

Supporting Documentation: Oak Ridge National Laboratory Distributed Energy Program, Quarterly Progress Report 4th Quarter (July 1 – September 30, 2006); Fact Sheet (Distributed Energy Program FY05/06 Accomplishments) "Hospital IES Provides Clean, Secure Energy"; Letter Report to ORNL from Burns & McDonnell Engineering

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Program Goal: Southeastern Power Administration Ensure

Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's Control Compliance Ratings, meeting planned repayment targets, and achieving a recordable accident frequency rate at or below our safety performance standard.

Results: Southeastern delivered available power to the transmission grid in compliance with National Electric Reliability Control Performance Standards. Rainfall was significantly lower than expected which decreased revenue available for repayment and a subsequent decrease in forecast economic benefits.

FY 2006 Annual TargetsFY06FY05FY04FY03

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Meet NERC Control Performance Standards (CPS) of CPS1>100 and CPS2>90. CPS1: minute by minute measures a generating system's ability to match supply to changing demand requirements and support desired system frequency (about 60 cycles per second); CPS2: measures systems ability to limit the magnitude of generation and demand imbalances. (PMA GG 4.51.1)

Results: For all four quarters of FY 2006, the Southeastern Power Administration (SEPA) achieved passing scores both on both CPS 1 (annually 201.34) and CPS 2 (annually 99.77).

Supporting Documentation: CPS 1 and CPS 2 reported to Southeastern Electricity Reliability Council Web Portal on Form P1T1.

FY06FY05FY04FY03

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Repay \$40.7 million annually under average water conditions to meet required payments as they come due and assure that all aged investments will be replaced on a timely basis now and in the future. (PMA GG 4.51.2)

Results: In FY 2006, the southeast area of the United States experienced the eighth worst period of drought in the past 100 years. Cyclical drought conditions resulted in below average power generation and a subsequent decrease in repayment. Persistent drought conditions thru the fourth quarter resulted in year-end repayment being only 52 percent of planned.

Supporting Documentation: SERC/NERC Compliance reported to SERC Web Portal: Disturbance Control (Form P1T2); Compliance Issues (Form P2T1); Operator Training (Form P8T2).

Action Plan: Greater than average rainfall over the previous 2 fiscal years enabled Southeastern's repayment to be significantly greater than planned. The cyclical nature of rainfall should be considered when evaluating off-year results that are less than expected.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
R	G	NA	NA	Provide \$635 million in annual economic benefits to the region under average water conditions. (PMA GG 4.51.3)
<p><i>Results:</i> Continuing through the fourth quarter of FY 2006, cyclical drought conditions in the southeast resulted in below average power generation and lower than expected economic benefits. Cumulative economic annual benefits are only 72 percent of average (approximately \$457 million).</p> <p><i>Supporting Documentation:</i> Power Repayment Studies, Annual Report & Audited Financial Statements</p> <p><i>Action Plan:</i> Greater than average rainfall over the previous 2 fiscal years enabled economic benefits associated with the sale of Federal hydroelectric power to be significantly greater than planned. The cyclical nature of rainfall should be considered when evaluating off-year results that are less than expected.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
Y	G	G	Y	<u>Program Goal: Southwestern Power Administration</u> Market and Deliver Federal Power: Provide the benefits of Federal power to customers by selling and reliably delivering power from Federal multi-purpose hydroelectric dams at the lowest cost-based rates possible that produce revenues sufficient to repay all power costs to the American taxpayers.
<p><i>Results:</i> The Southwestern Power Administration (Southwestern) supports the Department's energy goal by marketing and delivering reliable, affordable and environmentally sound energy, and operating a reliable transmission system which is an integral part of the Nation's transmission grid. Southwestern, in conjunction with the U.S. Army Corps of Engineers, participates in this effort by managing the multipurpose operation of the Federal hydropower system. This enables effective marketing, generation, and delivery of clean, reliable, cost-based electric power</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Meet industry averages (CPS1: 162.3 and CPS2: 96.7) and at a minimum, meet NERC Control Performance Standards (CPS) of CPS1>100 and CPS2>90. CPS1: minute by minute measures a generating system's ability to match supply to changing demand requirements and support desired system frequency (about 60 cycles per second); CPS2: measures systems ability to limit the magnitude of generation and demand imbalances. (PMA GG 4.52.1)
<p><i>Results:</i> Achieving this target reflects Southwestern's ability to maintain acceptable power system operation for control area performance, thereby operating the power system efficiently and effectively.</p> <p><i>Supporting Documentation:</i> CPS 1&2 - NERC Monthly Control Compliance Rating Report for 2000 through 2006. Data can be found at http://www.nerc.com/~filez/cps.html.</p>				
<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	Operate the transmission system so there are no more than 3 preventable outages annually. (PMA GG 4.52.2)
<p><i>Results:</i> Southwestern Power Administration had no preventable customer outages during the second, third, and fourth quarters of FY 2006, but had 1 during the first quarter. Achieving this target reflects Southwestern's ability to provide reliable service to customers each year, thereby maintaining power system reliability.</p> <p><i>Supporting Documentation:</i> Southwestern's Point of Delivery Incidents Log.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Repay the Federal Investment within the required repayment period. (PMA GG 4.52.3)
G	G	G	Y	
<p><i>Results:</i> Year-to-date, Southwestern has achieved 100.0%, or \$1,047,467, of required repayment of the Federal investment. Achieving this target reflects Southwestern's commitment to meet repayment of the Federal investment, thereby achieving and maintaining financial integrity.</p> <p><i>Supporting Documentation:</i> Power Repayment Studies, Annual Report, Audited Financial Statements</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Provide power at the lowest possible cost by keeping average operation and maintenance cost per kilowatt-hour below the National average for hydropower. (PMA GG 4.52.4)
G	G	NA	NA	
<p><i>Results:</i> Southwestern Power Administration delivered electricity from hydropower at an average cost of \$0.0116 per kilowatt-hour, approximately 15 % lower than the National industry average of \$0.0136 per kilowatt-hour. Achieving this target reflects Southwestern's ability to control annual Operations and Maintenance costs, thereby providing power at the lowest possible cost.</p> <p><i>Supporting Documentation:</i> Southwestern's Financial Management System, U.S. Army Corps of Engineers Financial Data Reporting, Surveyed Utilities Financial Reporting to FERC.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Provide \$462 million in economic benefits to the region from the sale of hydroelectric power (under average water conditions). (PMA GG 4.52.5)
Y	G	NA	NA	
<p><i>Results:</i> Year-to-date, Southwestern has achieved 69.7 percent, or \$322 million, of the \$462 million annual goal. The severe drought affected Southwestern's ability to achieve a "Green" rating for this target. Southwestern remains vigilant in the effort to provide economic benefits within its marketing area through the delivery of Federal hydropower, thereby advancing the President's commitment to provide both renewable and affordable energy to the nation, while reducing the nation's use of conventional fossil fueled energy.</p> <p><i>Supporting Documentation:</i> Energy dollar values were obtained from U.S. Army Corps of Engineers' (Corps) Greers Ferry Lake Reallocation Study dated September 1997. Capacity dollar values were developed by the Corps' Hydropower Analysis Center using Federal Energy Regulatory Commission procedures. Actual generation was obtained from the Corps power plant reports. Southwestern has 2,247.8 megawatts of capacity for support of the 2052.6 megawatts of marketed capacity with 5,570 gigawatt-hours (GWH) of energy produced from average water conditions.</p> <p><i>Action Plan:</i> Southwestern continues to experience severe drought conditions that hamper its ability to generate sufficient energy to fulfill its contractual obligations and provide expected economic benefits. In order to accomplish this goal with a "GREEN" rating, the system will have to generate approximately 720 GWh, or about 73 percent of average for the first quarter of FY 2007.</p>				

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Program Goal: Western Area Power Administration:

Ensure Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's Control Compliance Ratings.

Results: Achievement of the annual target related to power system reliability indicates that the Department continues to meet its goal of efficiently and effectively delivering Federal hydropower.

FY 2006 Annual TargetsFY06

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System Reliability Performance: Attain acceptable North American Electric Reliability Council (NERC) ratings for the following Control Performance Standards (CPS) measuring the balance between power generation and load: 1) CPS1 which measures generation/load balance and support system frequency on 1-minute intervals (rating>100); and 2) CPS2 which limits any imbalance magnitude to acceptable levels (rating>90). (PMA GG 4.53.1)

Results: Overall Western Area Power Administration FY 2006 CPS1 and CPS2 averages were: CPS1 - 184.42; CPS2 - 98.69. Balanced supply and demand ensures sage and stable electric power grid operation.

Supporting Documentation: Regional monthly compliance results are published on the NERC website (<http://www.nerc.com/~filez/cpc.html>). Data recorded and submitted to NERC on NERC Form CPS-1, NERC Control Performance Standard Survey All Interconnections, Form CPS-2, NERC Control Performance Standard Survey Regional Summary, and NERC CPS Calculation Spreadsheet (for calculating CPS compliance). The data is captured by a computer routine in each of Western's control center's Energy Management System (EMS) computer.

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Program Goal: Bonneville Power Administration

Ensure Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's Control Compliance Ratings, meeting planned repayment targets, and achieving a recordable accident frequency rate at or below our safety performance standard.

Results: Achieving the performance targets for FY 2006 demonstrates Bonneville's commitment and ability to market and deliver Federal hydropower reliably, safely, and in keeping with its planned repayment obligations.

FY 2006 Annual TargetsFY06

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Attain average NERC compliance ratings for the following NERC Control Performance Standards (CPS) measuring the balance between power generation and load, including support for system frequency: (1) CPS1, which measures generation/load balance on one-minute intervals (rating greater than or equal to 100); and (2) CPS2, which limits any imbalance magnitude to acceptable levels (rating greater than or equal to 90). (PMA GG 4.54.1)

Results: Achieving 6 of 6 possible CPS pass ratings in FY 2006 demonstrates Bonneville's commitment and ability to provide reliable transmission for the region.

Supporting Documentation: Quarterly Findings Memo randums from the Bonneville Chief Operating Officer to the Bonneville Administrator.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Meet planned annual repayment of principal on Federal power investments. (PMA GG 4.54.2)
G	G	G	G	
<p>Results: Bonneville made its annual Treasury payment in full and on time, with a FY 2006 Treasury principal amortization payment of \$646.2 million which included \$303.8 million of planned principal amortization, \$337.1 million of advanced principal amortization and \$5.3 million of advanced principal amortization related to the sale of transmission facilities. Cumulative advanced amortization (principal repaid earlier than planned) at the end of FY 2006 totaled \$1,802 million. For the 23rd straight year, Bonneville has made its annual Treasury payment in full and on time -- meeting this performance target demonstrates Bonneville's commitment to meeting its obligations to U.S. taxpayers.</p> <p>Supporting Documentation: Quarterly Findings Memo from the Bonneville Chief Operating Officer to the Bonneville Administrator.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Achieve a recordable accident frequency rate (RAFR) of no more than 3.3 recordable injuries per 200,000 hours worked or the Bureau of Labor Statistics' industry rate, whichever is lower. (PMA GG 4.54.03)
G	G	G	G	
<p>Results: The Bonneville Power Administration surpassed its target with a 2.4 RAFR for FY 2006. BPA implemented several programs to reduce injuries including Supervisor Safety Training (designed to enhance the injury prevention skills of our field supervisors and clearly inform them of their active role in injury prevention) and safety briefings that heightened awareness of job hazard analysis. As a result, Bonneville experienced a low number of accidents in its higher-risk occupations, including a clear reduction in field crew injuries. Exceeding this annual safety target demonstrates Bonneville's ongoing commitment to proactively ensuring a safe work environment for its employees. The latest reported injury rate by the Bureau of Labor was for 2004 and was 4.8 per 100 equivalent full-time workers. (100 full-time workers work approximately 200,000 hours in a year).</p> <p>Supporting Documentation: Quarterly Findings Memo from the Bonneville Chief Operating Officer to the Bonneville Administrator.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Achieve 97 percent Heavy-Load-Hour Availability (HLHA) through efficient performance of Federal hydro-system processes and assets, including joint efforts of BPA, Army Corps of Engineers, and Bureau of Reclamation. HLHA is actual machine capacity available during heavy-load hours (0700-2200 Monday-Saturday), divided by planned available capacity during heavy-load hours. (PMA GG 4.54.4)
G	G	NA	NA	
<p>Results: Bonneville, along with its The Federal Columbia River Power System hydropower partners (Bureau of Reclamation, and Corps of Engineers) exceeded this operational target for the hydropower system with 98.3 percent for end of fiscal year performance. The HLHA measure is designed to improve the alignment of generation availability with water supply and market demand. Exceeding this target for FY 2006 demonstrates Bonneville's commitment and ability to provide reliable power to the region. By optimizing planned maintenance and taking into consideration expected forced outages, BPA's HLHA performance ensured that BPA had the system capacity to serve its system load.</p> <p>Supporting Documentation: Quarterly Findings Memo from the Bonneville Chief Operating Officer to the Bonneville Administrator.</p>				

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Program Goal: Energy Information Administration

EIA's information program is relevant, reliable, and consistent with changing industry structures, and EIA's products are accurate and timely.

Results: EIA evaluates its progress toward meeting this goal by monitoring release schedules and customer satisfaction levels. Successful completion of its corresponding annual targets indicates that EIA is achieving its program goal of informing sound policymaking, efficient energy markets and public understanding.

FY 2006 Annual TargetsFY06

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Products meeting release schedules – 90% of selected products (data publications and forecasts) will meet release schedules ranging from weekly to multi-year. (EIA GG 4.61.1)

Results: The Department exceeded its target by meeting 94 percent of the release schedules selected for monitoring. Many energy markets rely on EIA data being available on schedule, and by meeting these needs, EIA helps to promote efficient energy markets, and, to a lesser extent, sound policy making and public understanding. Together, these help to promote a diverse supply and delivery of reliable, affordable, and environmentally sound energy, both now and in the future.

Supporting Documentation: EIA selected which products to track, established scheduled release dates, and is tracking the actual release dates against this schedule. The products selected include both data and forecasts, and are from all major EIA offices. For this year, we are tracking 8 weekly, 6 monthly, 3 quarterly, and 23 annual or multi-year products.

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Complete customer satisfaction survey - At least one customer survey will be conducted during the year to measure customer satisfaction with the quality of EIA information. (EIA GG 4.61.2)

Results: EIA conducted one customer satisfaction survey during the FY 2006. EIA believes that the ratings and comments from our customers provide us with important insights into how our information is used, who the customers are, what they are looking for, and areas for future improvements. EIA also obtains feedback in other ways, including a recently completed external study team review of our major activities. All of this feedback helps EIA to continue to provide high-quality and relevant information, which assists in the management of energy in the U.S. both now and in the future.

Supporting Documentation: The customer satisfaction survey and the associated survey responses.

DRAFT

General Goal 5:**World-Class Scientific Research Capacity**

Provide world-class scientific research capacity needed to ensure the success of Department missions in national and energy security; advance the frontiers of knowledge in physical sciences and areas of biological, medical, environmental, and computational sciences; and provide world-class facilities for the Nation's science enterprise.

FY 2006 Annual Performance Targets

<u>G-Green</u>	<u>Y-Yellow</u>	<u>R-Red</u>	<u>U - Undetermined</u>
25	0	1	0

Program Costs (\$ in Millions):

FY06**FY05****FY04****FY03****Y****Y****G****Y**

Program Goal: High Energy Physics (HEP) Understand the unification of fundamental particles and forces and the mysterious forms of unseen energy and matter that dominate the universe; search for possible new dimensions of space; and investigate the nature of time itself.

Results: Experiments at HEP accelerators are providing a better understanding of the origin of the universe and the relationship of fundamental forces. By studying the combining of particles and interactions into basic building blocks at high particle energies, we are increasing our knowledge of the forces that control the universe.

FY 2006 Annual Targets**FY06****FY05****FY04****FY03****G****G****G****G**

Deliver within 20 percent of baseline estimate a total integrated amount of data (in inverse picobarns) to the CDF and D-Zero detectors at the Tevatron. The FY06 baseline is 675 pb⁻¹, so within 20 percent of baseline is 540 pb⁻¹. (SC GG 5.19.1)

Results: Delivered 621 inverse picobarns (pb⁻¹) of data during FY 2006. Achieving this target produces experimental data that advances our knowledge of the nature of fundamental particles and the physical laws that govern matter, energy, space and time.

Supporting Documentation: <http://www-bdnew.fnal.gov/operations/lum/supertable.html> This page, "Quarterly Performance Numbers," lists the number of inverse picobarns for each quarter of 2006.

FY06**FY05****FY04****FY03****G****R****G****G**

Deliver within 20 percent of baseline estimate a total integrated amount of data (in inverse femtobarns) delivered to the BABAR detector at the Stanford Linear Accelerator (SLAC) B-factory. The FY06 baseline is 100 fb⁻¹, so within 20 percent of baseline is 80 fb⁻¹. (SC GG 5.19.2)

Results: Delivered 100 inverse femtobarns (fb⁻¹) of data during FY 2006. Achieving this target produces experimental data that advances our knowledge of the nature of fundamental particles and the physical laws that govern matter, energy, space and time.

Supporting Documentation: http://www.slac.stanford.edu/grp/ad/PEP-II_Run_Time_Statistics/PEP%20FY2003-5%20totals%20for%20DOE.pdf This page, "SLAC-PEP-II Run Statistics," for the BABAR Detector and PEP-II B-factory, records its "data delivery" (in fb⁻¹) and "unscheduled downtime."

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	NA	NA	Achieve less than 10 percent for both the cost-weighted mean percentage variance from established cost and schedule baselines for major construction, upgrade, or equipment procurement projects. (SC GG 5.19.3)
<p><i>Results:</i> Annual cost-weighted percentage cost-variance for two HEP projects was 0 percent and 1 percent. Annual cost-weighted percentage schedule-variance for the two HEP projects was -1 percent and 0 percent. Controlling project costs and meeting construction schedules enables the Department to conduct world-class scientific research across a wide-range of disciplines.</p> <p><i>Supporting Documentation:</i> Derived from Quarterly Project Reports for the following projects: U.S. Compact Muon Solenoid (CMS) and U.S. A Toroidal LHC Apparatus both located at the Large Hadron Collider near Geneva Switzerland. Cost and schedule variance calculated by Earned Value for each project is averaged, weighted by the Total Project Cost for that project. The supporting documentation resides in the files of the HEP Office (SC-25); a web site is under development.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
R	R	G	G	Achieve greater than 80 percent average operation time of the scientific user facilities (the Fermilab Tevatron and the Stanford Linear Accelerator (SLAC) B-factory) as a percentage of the total scheduled annual operating time. (SC GG 5.19.40)
<p><i>Results:</i> Average operational time was 78.4 percent. The Stanford Linear Accelerator (SLAC) met its goal, but the Fermilab Tevatron experienced magnet failures in both the first and second quarter of FY 2006 which reduced optimal functionality of the facility in delivery of data to researchers.</p> <p><i>Supporting Documentation:</i> Derived from letters from Lab Directors or designee. Fermi data are reported at same website as for SC GG 5.19.1 (http://www-bdnew.fnal.gov/operations/lum/supertable.html); SLAC data at same website as for SC 5.19.2 (http://www.slac.stanford.edu/grp/ad/PEPII_Run_Time_Statistics/PEP%20FY2003-5%20totals%20for%20DOE.pdf.)</p> <p><i>Action Plan:</i> The magnets at the Tevatron were repaired and uptime was reported at 8 percent and 11 percent for the third and fourth quarters of FY 2006, respectively.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	Measure within 20 percent of the total integrated amount of data (in protons-on-target) delivered to the MINOS detector using the NuMI facility. The FY06 baseline is 1×10^{20}, so within 20 percent of baseline is 0.8×10^{20}. (SC GG 5.19.5)
<p><i>Results:</i> Delivered 1.01×10^{20} protons-on-target. This level of data delivery enables research at the NuMI facility to proceed on schedule, where scientist discovery additional properties of the neutrino and test aspects of the Standard Model of the physical universe.</p> <p><i>Supporting Documentation:</i> http://www-bdnew.fnal.gov/operations/lum/supertable.html. This page, "Quarterly Performance Numbers," lists the number of protons-on-target for each quarter of 2006.</p>				

FY06**FY05****FY04****FY03****G****G****G****G**

Program Goal: Nuclear Physics (HEP) Understand the evolution and structure of nuclear matter, from the smallest building blocks, quarks and gluons; to the elements in the universe created by stars; to unique isotopes created in the laboratory that exist at the limits of stability, possessing radically different properties from known matter.

Results: Experiments at Nuclear Physics Accelerator User Facilities are substantially advancing our understanding of nuclear matter and the early universe. This, in turn, is helping to maintain the Nation's leadership role in nuclear physics research. This research is central to the development of various technologies in the fields of nuclear energy, nuclear medicine, and national security. Additionally, the highly trained scientific and technical personnel involved in fundamental nuclear physics are a valuable human resource for many applied fields.

FY 2006 Annual Targets

FY06**FY05****FY04****FY03****G****G****G****NA**

Record at least 80 percent of the weighted average number of billions of events recorded at the Argonne Tandem Linac Accelerator System and Holifield Radioactive Ion Beam facilities, respectively. The FY06 Baseline weighted average is 9.5 (17.5, 1.4); so at least 80 percent of the weighted average is 7.5 (14, 1.1). (SC GG 5.20.1)

Results: Exceeded the target by achieving a weighted average number of 15.8 billion events at ATLAS and HRIBF (24.6 billion events at ATLAS and 7.1 billion events at HRIBF) for FY 2006. Achieving these high recording rates is accelerating scientific research in the areas of nuclear properties. Scientists accelerate and collide radioactive and stable beams on targets to investigate new regions of nuclear structure, studying interactions in nuclear matter like those occurring in neutron stars, and determining the reactions that created the nuclei of the chemical elements inside stars and supernovae.

Supporting Documentation: Official letters from Argonne National Laboratory and Oak Ridge National Laboratory management to NP Office reporting and certifying accuracy of recorded number of events at ATLAS and HRIBF (per documented control process). Documentation resides in the Office of Nuclear Physics (SC-26) files.

FY06**FY05****FY04****FY03****G****G****G****NA**

Record at least 80 percent of the weighted average number of billions of events recorded by experiments in Hall A, Hall B, and Hall C at the Continuous Electron Beam Accelerator Facility. The FY06 Baseline weighted average is 3.62 (1.45, 7.70, 1.70); so at least 80 percent of the weighted average is 2.89 (1.16, 6.16, 1.36). (SC GG 5.20.2)

Results: Exceeded the target by achieving a weighted average number of 4.53 billion events (Recorded 1.77 billion events in Hall A; 9.93 billion events in Hall B; and 1.9 billion events in Hall C) during FY 2006. Achieving this target allows scientists to study the structure of the nucleon and light nuclei. These accomplishments allow precise measurements of fundamental properties of the proton, neutron and simple nuclei for comparison with theoretical calculations to provide a quantitative understanding of the quark sub-structure.

Supporting Documentation: Official letter from Thomas Jefferson National Laboratory management to NP Office reporting and certifying accuracy of recorded number of events in Hall A, B, C at CEBAF (per documented control process). Documentation resides in the Office of Nuclear Physics (SC-26) files.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Achieve at least 80 percent average operation time of the scientific user facilities as a percentage of the total scheduled annual operating time. (SC GG 5.20.3)
<p><i>Results:</i> Exceeded the target by NP user facilities achieving a 94 percent liability of uptime/scheduled time during FY 2006. By achieving this target, scientists can maximize use of the facility's capabilities and optimize studying nuclear physics. The level of reliability is a key characteristic of a world-class research facility.</p> <p><i>Supporting Documentation:</i> Official letters from Argonne National Laboratory (ATLAS), Brookhaven National Laboratory (RHIC), Oak Ridge National Laboratory (HRIBF), and Thomas Jefferson National Laboratory (CEBAF) management to NP Office reporting and certifying annual achieved operation time of the user facility (per documented control process); NP program office worksheet showing subsequent calculation and compiled average of the achieved operation time as a percent of total scheduled annual operating time. Documentation resides in the Office of Nuclear Physics (SC-26) files.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	<u>Program Goal: Biological and Environmental Research (BER)</u>
G	Y	G	G	Provide the biological and environmental discoveries necessary to clean and protect our environment, offer new energy alternatives, and fundamentally alter the future of medical care and human health.
<p><i>Results:</i> Manipulation of matter by BER at the micro, nano, and molecular scales is fueling progress towards revealing the mechanisms and fundamental secrets of biological and environmental systems. This progress will allow modeling and prediction of biological and environmental interactions on a regional and global basis.</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	N/A	Develop predictive model for contaminant transport that incorporates complex biology, hydrology, and chemistry of the subsurface. Validate model through field tests. (SC GG 5.21.1)
<p><i>Results:</i> For the FY 2006 model development effort, ground contaminants measured at the field site were in agreement with the model's predicted dissolved phase contaminant concentrations, indicating accurate prediction of how contaminants move in the soil and identify areas that would benefit from further study.</p> <p><i>Supporting Documentation:</i> Emails reporting the results reside at http://www.lbl.gov/NABIR/generalinfo/</p>				
<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Increase the rate of DNA sequencing -- Number (in billions) of base pairs of high quality (less than one error in 10,000 bases) DNA microbial and model organism genome sequence produced annually. In FY 2006 at least 30 billion base pairs will be sequenced. (SC GG 5.21.2)
<p><i>Results:</i> Exceeded the target by sequencing over 32.7 billion base pairs of high quality DNA during FY 2006. Achieving this target increases our body of knowledge about DNA from which scientists hope to find new ways to treat or avoid illness, as well as develop new pharmaceutical and agricultural products, energy sources, industrial processes, and solutions to a variety of environmental problems.</p> <p><i>Supporting Documentation:</i> Emails reporting the results reside at http://www.jgi.doe.gov/sequencing/statistics.html</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Improve climate models: Produce a new continuous time series of retrieved cloud properties at each Atmospheric Radiation Measurement (ARM) site and evaluate the extent of agreement between climate model simulations of water vapor concentration and cloud properties and measurements of these quantities on time scales of 1 to 4 days. (SC GG 5.21.3)

Results: The program produced the necessary continuous time series data in FY 2006 and found general agreement between two (out of three) ARM sites and the climate model simulations for those two areas of the U.S. Achieving this target permits the implementation of climate models and moves the program closer to climate simulations that will help determine energy policy relative to global climate change.

Supporting Documentation: Emails reporting the results reside at <http://asd.llnl.gov/asc/>

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	The average achieved operation time of the (climate change) scientific user facilities as a percentage of the total scheduled annual operating time in FY06 is greater than 96 percent at the Free Air Carbon Dioxide Enrichment (FACE) and 98 percent at the ARM. (SC GG 5.21.4)

Results: The BER climate change scientific user facilities operated on schedule in FY 2006 to exceed the annual target. Achieving this target ensures that these climate change scientific facilities are open and available to users to the maximum extent possible.

Supporting Documentation: Emails reporting the results and reside at <http://www.sc.doe.gov/ober/ccrd/FACE.htm> and <http://www.arm.gov/acrf/opsstats.stm>

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	The average achieved operation time of the (environment) scientific user facilities as a percentage of the total scheduled annual operating time is greater than 95 percent. (SC GG 5.21.5)

Results: Exceeded the target. The Environmental Molecular Sciences Laboratory (EMSL) operated for a total of 4361 hours (99.7 percent of available hours) during FY 2006. Achieving this level of performance ensures that the ESML is open and available to users to the maximum extent possible.

Supporting Documentation: Emails reporting the results reside at <http://www.emsl.pnl.gov/homes/hours.shtml>

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	The average achieved operation time of the (life sciences) scientific user facilities as a percentage of the total scheduled annual operating time is greater than 99 percent for the Center for Comparative and Functional Genomics (CCFG) and 98 percent for the Production Genomics Facility (PGF). (SC GG 5.21.6)

Results: BER life sciences user facilities operated on schedule in FY 2006 to exceed the annual target. This level of performance ensures that these life science facilities are open and available to users to the maximum extent possible.

Supporting Documentation: Emails reporting the results reside at: <http://www.ornl.gov/sci/mgrf/facilities.shtml> and <http://www.jgi.doe.gov/sequencing/statistics.html>

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	R	G	NA	Complete design of a nominal 256 microelectrode array retinal prosthesis. Construct and test individual components for electronic integrity and biocompatibility in <i>in vitro</i> and animal test systems. (SC GG 5.21.7)
<p><i>Results:</i> Several design iterations of the nominal 256 microelectrode have been evaluated, assembled and implanted in models at the Doheny Eye Institute located at the University of Southern California. The achievement of this goal brings closer the possibility of restoring some sight to patients with retinal disorders.</p> <p><i>Supporting Documentation:</i> Quarterly - Emails reporting the results are available at http://www.doemedicalsciences.org/abt/retina/retinas.shtml</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	<u>Program Goal: Basic Energy Sciences (BES)</u>
G	G	G	G	Provide the scientific knowledge and tools to achieve energy independence, securing U.S. leadership and essential breakthroughs in basic energy sciences.
<p><i>Results:</i> Progress continues to be made towards supporting fundamental research—such as understanding the behavior of large assemblies of interacting components and observing and manipulating matter at the molecular scale—to expand the scientific foundations for new and improved energy technologies.</p>				

FY 2006 Annual Targets

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	Improve Temporal Resolution: Demonstrate an X-ray pulse of less than 100 femtoseconds in duration and containing more than 100 million photons per pulse. (SC GG 5.22.1)
<p><i>Results:</i> In FY 2006, scientists achieved the target by generating 70 femtosecond X-ray light pulses, each containing more than 100 million photons. This improvement in time-resolved imaging will enable a deeper understanding of complex chemical reactions and biological processes such as the folding of proteins.</p> <p><i>Supporting Documentation:</i> Report(s) from the research performer(s) with references to the source documentation that contains the final results for this Annual Target reside in the files of the Office of Basic Energy Sciences within the Department's Office of Science.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	NA	Improve Spatial Resolution: Demonstrate first measurement of spatial resolutions for imaging in the hard and soft x-ray regions (less than 100 and 18 nanometers respectively), and spatial information limit for an electron microscope (less than 0.08 nanometers). (SC GG 5.22.2)
<p><i>Results:</i> In FY 2006, scientists were able to image to a spatial resolution of 90 and 15 nanometers in the hard and soft X-ray regions, respectively and 0.078 nanometers for an electron microscope. These new levels of spatial resolution imaging allows scientists to improve the clarity from which they can “see” very small objects such as viruses or even atoms, which have a size on the scale of nanometers.</p> <p><i>Supporting Documentation:</i> Report(s) from the research performer(s) with references to the source documentation that contains the final results for this Annual Target will reside in the files of the Office of Basic Energy Sciences within the Office of Science.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div>G</div>	G	G	NA	Achieve greater than 30 reacting species and 20 million grid points in a three-dimensional combustion reacting flow computer simulation, as a part of the Scientific Discovery through Advanced Computing (SciDAC). (SC GG 5.22.3)

Results: In FY 2006, scientists exceeded the targets by achieving 33 reacting species and 21.2 million grid points that allow them to improve our ability to simulate real-world conditions for combustion. Understanding combustion and the ability to accurately conduct simulations is essential to developing more efficient catalysis technologies.

Supporting Documentation: Report(s) from the research performer(s) with references to the source documentation that contains the final results for this Annual Target will reside in the files of the Office of Basic Energy Sciences with in the Office of Science.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div>G</div>	G	G	G	Cost-weighted mean percent variance from established cost and schedule baselines for major construction, upgrade, or equipment procurement projects. In FY06, it is at least 10 percent and 10 percent, respectively. (SC GG 5.22.4)

Results: During FY 2006, a -0.5 percent cost variance and a -2.9 percent schedule variance was achieved. Achieving this target improves our scientific efficiency and capability in major construction, upgrades, or equipment procurement. Controlling construction costs and meeting project schedules enables state-of-the-art research facilities to be available in time to maintain our world-leader status.

Supporting Documentation: Supporting documents reside in the DOE Office of Engineering and Construction Management's Project Assessment and Reporting System (PARS) and with Basic Energy Science's Division of Scientific User Facilities, within the Office of Science.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div>G</div>	G	G	G	Achieve an average operation time of the scientific user facilities as a percentage of the total scheduled annual operating time of greater than 90 percent. (SC GG 5.22.5)

Results: During FY 2006, the Department exceeded the annual target as BES facilities were available on average of 96.7 percent of the available operating time (average annual operating time at BES facilities as a percentage of planned scheduled time; i.e., 29,595 actual total hours delivered to users versus 30,610 total planned hours). Achieving this target ensures full use of the seven scientific user facilities and justifies investments in these crucial facilities.

Supporting Documentation: Supporting documents consist of the required annual reports submitted to BES by all BES user facilities at the completion of each fiscal year. These final reports reside in the files of the Office of Basic Energy Sciences with the Office of Science.

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Program Goal: Advanced Scientific Computing Research

(ASCR) Deliver forefront computational and networking capabilities to scientists nationwide that enable them to extend the frontiers of science, answering critical questions that range from the function of living cells to the power of fusion energy.

Results: The Department made significant gains in supercomputer efficiency in FY 2006 – dedicating more supercomputer time to the largest, most complex computations and accelerating those computations by optimizing the associated application codes. Progress continues to be made towards propelling scientific computing to the forefront of discovery. Scientific computing joins theory and experiment to enable researchers to make scientific progress.

FY 2006 Annual TargetsFY06

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Focus usage of the primary supercomputer at the National Energy Research Scientific Computing Center (NERSC) on capability computing. Percentage of the computing time used that is accounted for by computations that require at least 1/8 of the total resource. In FY06, the time used is at least 40 percent. (SC GG 5.23.1)

Results: In FY2006, the Department exceeded its target. 50.9 percent of Seaborg (NERSC computer) computational time was for jobs that required at least 768 or more CPUs (1/8 of the total resource). Increasing the use of primary supercomputer for large-scale problems enables the Office of Science to answer complex scientific questions sooner - keeping US research on the frontiers of science.

Supporting Documentation: The data (per documented control process) is available at <https://athena.nersc.gov/SPdocs/> (userid and password required, to be provided to reviewers). This data comes directly from the batch queue accounting system at NERSC.

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Average annual percentage increase in the computational effectiveness (either by simulating the same problem in less time or simulating a larger problem in the same time) of a subset of application codes within the Scientific Discovery through Advanced Computing (SciDAC) effort. In FY06, the computational effectiveness is greater than 50 percent. (SC GG 5.23.2)

Results: In FY 2006, the Department exceeded its target by more than double. The average percentage increase in computational effectiveness was 135 percent. The enhanced performance of these codes enable scientist to obtain computational solutions previously unachievable using earlier versions of the computer applications.

Supporting Documentation: Reports detailing these evaluations reside in the files of the ASCR Office within the Office of Science.

DRAFT

FY06FY05FY04FY03

G

G

G

Y

Program Goal: Fusion Energy Sciences (FES) Answer the key scientific questions and overcome enormous technical challenges to harness the power that fuels a star, realizing by the middle of this century a landmark scientific achievement by bringing “fusion power to the grid.”

Results: The experiments support the President’s commitment to make ITER a success as we move towards the promise of clean nuclear power based on the same principles that power our sun.

FY 2006 Annual Targets

FY06FY05FY04FY03

G

G

NA

NA

Conduct experiments on the major fusion facilities (DIII-D, Alcator C-Mod, NSTX) leading toward the predictive capability for burning plasmas and configuration optimization. In FY 2006, FES will inject 2 mega watts (MW) of neutral beam power in the counter direction on DIII-D and begin physics experiments. (SC GG 5.24.1)

Results: By September 7, 2006, the new counter injection capability had been used as a critical tool in seven key fusion plasma physics experiments. In addition for FY 2006, 5 MW of neutral beam power was injected in the counter direction on DIII-D from the modified neutral beam line. These experiments provide critical data on plasma behavior needed to eventually predict the performance of burning plasma at the ITER.

Supporting Documentation: <http://www.ofes.fusion.doe.gov/ProgramTargets/ProgramTargets.htm> - This website provides documentation of achievement for this target.

FY06FY05FY04FY03

G

G

NA

NA

Increase resolution in simulations of plasma phenomena -- optimizing confinement and predicting the behavior of burning plasmas require improved simulations of edge and core plasma phenomena, as the characteristics of the edge can strongly affect core confinement. In FY 2006 FES will simulate nonlinear plasma edge phenomena using extended magnetohydrodynamic (MHD) codes with a resolution of 40 toroidal modes. (SC GG 5.24.2)

Results: In FY 2006, the program increased the resolution in simulations of plasma phenomena from 20 to 40 toroidal modes thus enhancing our understanding of the conditions that exist in plasma confinement (within a small scale nuclear fusion reactor) and how it interacts with materials such as the facing components (i.e., components that placed on the internal walls of the reactor). Achieving this target provides lessons learned about the behavior of plasma at its edges that can be transferred over to ITER as it is being designed.

Supporting Documentation: <http://www.ofes.fusion.doe.gov/ProgramTargets/ProgramTargets.htm> - This website provides documentation of achievement for this annual target.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Average achieved operation time of the major national fusion facilities (DIII-D, Alcator C-Mod, NSTX) as a percentage of the total planned operation time in FY06 of greater than 90 percent. (SC GG 5.24.3)
<div>G</div>	G	G	R	
<p><i>Results:</i> During FY 2006, the Department exceeded its goal for this target by achieving a 131 percent of the total planned operation time (Additional funding was made available to run one of the experimental reactors longer than planned). Achieving this target ensured the maximum availability of these three major national fusion facilities for conducting experiments designed to address plasma confinement questions critical to the U.S. support of ITER.</p> <p><i>Supporting Documentation:</i> http://www.ofes.fusion.doe.gov/ProgramTargets/ProgramTargets.htm This website provides quarterly progress reports and documentation of achievement for this annual target. The results will be updated on a timely basis.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	Cost-weighted mean percent variance from established for major construction, upgrade, or equipment procurement projects in FY06 10 percent. (SC GG 5.24.4)
<div>G</div>	G	G	G	
<p><i>Results:</i> In FY 2006, the Department achieved its target by deviating less than 10 percent (cost-weighted mean percent) from established cost and schedule baselines for major construction, upgrade, or equipment procurement projects. Achieving this target improves our scientific efficiency and capability advancing the President's commitment to make science a national priority.</p> <p><i>Supporting Documentation:</i> http://www.ofes.fusion.doe.gov/ProgramTargets/ProgramTargets.htm This website provides quarterly progress reports and documentation of achievement for this annual target.</p>				

General Goal 6:**Environmental Management**

Accelerate cleanup of nuclear weapons manufacturing and testing sites, completing cleanup of 108 contaminated sites by 2025.

FY 2006 Annual Performance TargetsG-Green

7

Y-Yellow

0

R-Red

1

U-Undetermined

0

Program Costs (\$ in Millions): \$FY06**G**FY05

Y

FY04

R

FY03

Y

Program Goal: Environmental Management Complete the safe cleanup of the environmental legacy brought about from five decades of nuclear weapons development and government-sponsored nuclear energy research.

Results: The Office of Environmental Management's FY 2006 achievements include exceeding targets for packaging enriched uranium for conversion into electricity, packaging high level waste for secure storage until disposition in a geologic repository, and completing remediation work at release sites as well as nuclear and radioactive facilities. These achievements demonstrate the focus of the Environmental Management program to deliver significant reduction in environmental, safety, and security risks.

FY 2006 Annual TargetsFY06**G**FY05

G

FY04

NA

FY03

R

Enriched Uranium Packaged for Disposition. Package for disposition a cumulative total of 5,877 enriched uranium containers. This is an estimated increase of 1,980 containers over the planned cumulative total of 3,897 enriched uranium containers to be packaged for disposition at the end of FY 2005. (EM GG 6.18.1)

Results: The Department has exceeded its goals for FY 2006 by packaging 6,479 containers. Accomplishment of this measure will result in the Department meeting its goals for accelerated cleanup.

Supporting Documentation: Shipping Manifests and Disposal Records.

FY06**G**FY05

G

FY04

NA

FY03

Y

High Level Waste Packaged for Disposition. Package for disposition a cumulative total of 2,477 containers of high level waste. This is an estimated increase of 250 containers over the planned cumulative total of 2,227 containers of high level waste to be packaged for disposition at the end of FY 2005. (EM GG 6.18.2)

Results: The Department has exceeded its goals for FY 2006 by packaging 2489 containers. Accomplishment of this measure will result in the Department meeting its goals for accelerated cleanup.

Supporting Documentation: Quality Assurance Inspection Records for waste packaging.

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
R	R	R	G	TRU Waste Disposed at WIPP. Dispose at the Waste Isolation Pilot Plant (WIPP) a cumulative total of 55,211 cubic meters of transuranic (TRU) waste. This is an estimated increase of 14,500 cubic meters over the planned cumulative total of 40,711 cubic meters of TRU waste to be disposed at WIPP at the end of FY 2005. (EM GG 6.18.3)
<p><i>Results:</i> The Department was only able to dispose a cumulative total of 37,289 cubic meters by the end of FY 2006. This smaller cumulative total is due both to disposing of fewer cubic meters than planned in FY 2006 (9,414 vs a planned 14,500) and a low cumulative total in FY 2005 of 27,875 cubic meters. Fortunately, the Department is still on track to meeting its long term goals for accelerated cleanup. The Department is reevaluating its schedule for shipments and may establish more realistically achievable targets for FY 2007.</p> <p><i>Supporting Documentation:</i> Shipping Manifests.</p> <p><i>Action Plan:</i> DOE is working with Idaho and the other sites to meet its goals. Also, a complex-wide evaluation of the current goals that were originally set for this metric are being re-evaluated.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	G	G	G	Release Site Remediation Completions. Complete remediation work at a cumulative total of 6,069 release sites. This is an estimated increase of 400 release sites over the planned cumulative total of 5,669 release site remediation completions at the end of FY 2005. (EM GG 6.18.4)
<p><i>Results:</i> The Department began the fiscal year having completed a cumulative 5,858 release sites. In FY 2006, 211 additional release sites were completed for a yearend total of 6,069. Accomplishment of this measure will result in the Department meeting its goals for accelerated cleanup.</p> <p><i>Supporting Documentation:</i> State and federal regulator acceptance of the Remedial Action Report.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	Y	Y	G	Nuclear and Radioactive Facility Completions. Complete remediation work at a cumulative total of 357 nuclear and radioactive facilities. This is an estimated increase of 58 facilities over the planned cumulative total of 299 nuclear and radioactive facility completions at the end of FY 2005. (EM GG 6.18.5)
<p><i>Results:</i> The Department exceeded its target by achieving a cumulative total of 365 completely remediated facilities in FY 2006. Many sites, facilities in Rocky Flats are physically completed and awaiting final regulatory approval. When the regulators approve the facility completion reports, the Department can take credit for those facilities.</p> <p><i>Supporting Documentation:</i> Decommissioning Project Final Report. State and federal regulator acceptance of completion report.</p>				

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
G	NA	NA	NA	The Efficiency Measure. Remain within the limits of no greater than a 10 percent negative cost and schedule variance for the overall cost – weighted mean cost and schedule performance indices for the 80 operating projects and nine line item projects that are baselined and under configuration control. (EM GG 6.18.6)
<p><i>Results:</i> Accomplishment of this measure will result in the Department meeting its goals for efficient accelerated cleanup.</p> <p><i>Supporting Documentation:</i> Earned value data reported monthly by sites into the Integrated Planning, Accountability, and Budgeting System (IPABS).</p>				

FY06**FY05****FY04****FY03****G****G****G****NA**

Program Goal: Legacy Management The mission of the Office of Legacy Management (LM) is to manage the Department's post-closure responsibilities and ensure the future protection of human health and the environment.

Results: The Office of Legacy Management has successfully met the Department's post-closure responsibilities during FY 2006. The pensions and benefits funding needs were completely met and the long-term surveillance and maintenance activity achieved full compliance with all legal, regulatory, and contractual commitments.

FY 2006 Annual Targets

FY06**FY05****FY04****FY03****G****G****NA****NA**

Surveillance and Maintenance Activities. Conduct surveillance and maintenance activities at a cumulative total of 69 sites to ensure the effectiveness of cleanup remedies in accordance with legal agreements, or identify sites subject to additional remedial action in order to ensure effectiveness. (LM GG 6.26.1)

Results: The Department exceeded its target for FY 2006 by completing surveillance and maintenance activities at 70 sites, including Pinellas and Maxey Flats, in accordance with legal agreements. Accomplishment of this measure ensures continued effectiveness of cleanup remedies, and thereby protection of human health and the environment.

Supporting Documentation: Documentation is contained in the Grand Junction Office files.

FY06**FY05****FY04****FY03****G****NA****NA****NA**

Reduce Program Direction Expenditures. Reduce the ratio of program direction expenditures to the total expenditures (excluding Congressionally Directed Activities) by 1 percent from the FY 2005 baseline (approximately 20 percent; exact ratio TBD) (LM GG 6.26.2)

Results: The Office of Legacy Management met its goal for FY 2006 of reducing the ratio of program direction expenditures to the total appropriation by 4.1 percent. Accomplishment of this measure ensures a lower cost of administering the program activities.

Supporting Documentation: Documentation is contained in the Morgantown Office files and is also available on the STARS system.

General Goal 7:**Nuclear Waste**

License and construct a permanent repository for nuclear waste at Yucca Mountain and begin acceptance of waste by 2010.

FY 2006 Annual Performance TargetsG-Green

4

Y-Yellow

0

R-Red

0

U-Undetermined

0

Program Costs (\$ in Millions): \$FY06**G**FY05

R

FY04

G

FY03

R

Program Goal: Civilian Radioactive Waste Manage and dispose of high-level radioactive waste and spent nuclear fuel in a manner that protects health, safety and the environment; enhances national and energy security; and merits public confidence.

Results: The combination of achieving the Modified Critical Decision -1 Package, Environmental Impact Statement, and Reduced Management Program Funding targets will directly contribute to the Office of Civilian Radioactive Waste Management (OCRWM) submitting a docketable License Application (LA) by June 30, 2008. The submission and approval of an LA is critical if OCRWM is going to meet the 2017 waste acceptance date at Yucca Mountain.

FY 2006 Annual TargetsFY06**G**FY05

NA

FY04

NA

FY03

NA

Modified Critical Decision-1 (CD-1) Package. Submit for Energy Systems Acquisition Advisory Board (ESAAB) approval a modified critical decision-1 package that describes the design and operating plan for the repository, and provides a schedule for license application completion and docketing. (RW GG 7.25.1)

Results: The Energy Systems Acquisition Advisory Board convened on July 6, 2006 and approved the Office of Civilian Radioactive Waste Management (OCRWM) CD-1 proposal for changes to the repository operational concept and facilities. The new direction will address the technical challenges with handling commercial spent nuclear fuel in dry transfer cells. The benefits of the new direction include reduced worker exposure to radiation at the Yucca Mountain site and maximized use of existing utility infrastructure. These improvements will help support a successful License Application submission on June 30, 2008, and ultimately Yucca Mountain's waste acceptance in 2017.

Supporting Documentation: The CD-1 package that is submitted to ESAAB.

FY06**G**FY05

G

FY04

NA

FY03

NA

Environmental Impact Statement. Publish draft rail alignment environmental impact statement (EIS) in the Federal Register. (RW GG 7.25.2)

Results: The Department is consolidating and reviewing all comments from the internal and external customers pertaining to the draft Environmental Impact Statement (EIS) that was published in the Federal Register on August 3, 2006. This will enable the Department to produce a final EIS that will be incorporated into the License Application (LA) submission on June 30, 2008. The LA will allow the Department to stay on schedule and achieve waste acceptance at Yucca Mountain in 2017.

Supporting Documentation: Receipt of written comments from EIS Management Council

<u>FY06</u>	<u>FY05</u>	<u>FY04</u>	<u>FY03</u>	
<div>G</div>	G	NA	NA	Reduce Management Program Funding. Reduce the ratio of program direction/contractor management program funding to total program funding by 10 percent from the FY 2005 baseline ratio of 0.274. (RW GG 7.25.3)
<p><i>Results:</i> The management program funding is essentially the general and administrative (G&A) costs. By reducing the G&A costs, the Office of Civilian Radioactive Waste Management (OCRWM) can dedicate a greater portion on the total program funding to direct activities which support a successful submission of the License Application (LA). The LA will allow OCRWM to stay on schedule and achieve waste acceptance at Yucca Mountain in 2017.</p> <p><i>Supporting Documentation:</i> OCRWM monthly cost performance reports</p>				

STATUS OF UNMET FY 2005 PERFORMANCE TARGETS

Goal	Measure (PAR)	STATUS	Description of Performance Target	FY05 PAR (page No.)	Crosswalk to FY06 Program Goal
Goal 1: Nuclear Weapons Stewardship					
NA GG 1.27.02	Status: UNMET/OPEN	Complete 95 percent of items supporting Enduring Stockpile Maintenance (annual percentage of prior-year non-completed items completed).	p. 60	NA 1.27	
<p>Not complete. The program is behind schedule and will be unable to meet the annual target of 95% Enduring Stockpile Maintenance completed/100% of annual percentage of prior-year non-completed items completed--the respective completion forecasts are 78%/ is 74%, providing BWXT Pantex can complete 9 backlogged W80 test bed builds as un-funded "stretch" goals. Delays in (re) establishing the safety basis authorization precludes accomplishing some of the B61 baseline deliverables; all of the B83 deliverables, including 8 backlogged prior-year B83 disassembly & inspections (D&Is); and 6 W84 backlogged D&Is. These delays will not place the B61, W83, and W84 weapon systems in a non-operational condition. Action Plan: Reallocate the scheduled B83 production resources to extend safety basis activities or to accomplish offsetting surveillance workload and re-baseline the deferred work for FY07.</p>					
NA GG 1.27.03	Status: MET	Complete 30 percent of progress (cumulative) in completing NWC-approved B61-7/11 Life Extension Program (LEP) activity.	p. 60	NA 1.27	
<p>Complete. On track to fully achieve the 2006 the cumulative target of 40% (increase of 13%) of activities in accordance with the B61 LEP baseline schedule. Resolution of production issues enabled development of a recovery schedule that supports the Jun 06 First Production Unit build; and the Production and Design Agencies have completed Process Prove-In and engineering evaluations necessary to prepare for the first War Reserve build; however, potential safety delays remain a concern.</p>					
NA GG 1.30.02	Status: MET	Complete 67 percent of progress (cumulative) towards demonstrating ignition (simulating fusion conditions in a nuclear explosion) at the National Ignition Facility (NIF).	p. 67	NA 1.30	
<p>Complete. On track to achieve the 2006 cumulative target of 73% progress towards demonstrating ignition (increase of 8%) in 2006. Of the 9 major FY06 milestones that track progress towards ignition, 2 were completed in FY06/2Q and 7 are on schedule for completion. The technique demonstrated in accomplishing one of these 2 milestones, however, does not work above a specific temperature, so a new technique applicable at higher temperatures must be devised.</p>					
NA GG 1.30.04	Status: MET	Complete 26 percent (cumulative) of equipment fabrication to support ignition experiments at National Ignition Facility (NIF).	p. 67	NA 1.30	
<p>Complete. On track to achieve the 2006 cumulative target of 45% (increase of 24%) of equipment fabricated to support ignition experiments at NIF. One of the 3 major FY06 milestones for tracking progress on this measure (related to user optics) was completed in 2006 Q2. The remaining 2 are on schedule for completion.</p>					
NA GG 1.30.06	Status: MET	Achieve an average of 9 hours per experiment required by the operational crew to prepare the Z facility for an experiment.	p. 68	NA 1.30	
<p>Complete. On track to achieve the 2006 annual target of 11 hours of average time for the operational crew to prepare the Z facility for an experiment.</p>					
NA GG 1.31.03	Status: MET	Attain maximum individual platform capacity of 100 TeraOPS (with 50 TB memory & 1 PetaByte (PB) storage).	p. 70	NA 1.31	
<p>Complete. On track to fully achieve the 2006 annual target of a 100 teraflops platform computing capability.</p>					
NA GG 1.31.04	Status: UNMET/CLOSED	Attain total production platform capacity of 172 TeraOPS.	p. 70	NA 1.31	
<p>Complete due to change in baseline. On track to fully achieve the 2006 cumulative target of a 160 teraflops of platform computing capacity.</p>					
NA GG 1.35.01	Status: UNMET/CLOSED	Initiate designs, attain Critical Decision (CD) Phase One, or cancel for cause, 3 projects.	p. 75	NA 1.35	
<p>CD-1 for the third remaining project (Pantex Component Evaluation facility) has not been accomplished and is currently not scheduled. The project scope is being reevaluated and, for target purposes, the project should be considered cancelled for cause. If it is reinstated, it will not be separately tracked for accomplishment.</p>					
NA GG 1.35.02	Status: MET	Initiate construction (CD-3) on, or cancel for cause, 4 projects.	p. 76	NA 1.35	
<p>The CD-3 for the Pantex Building 12-064 Production Cells Upgrade project was completed in FY06/1Q.</p>					
NA GG 1.35.03	Status: MET	Completed or attained CD-4 within approved scope, cost, and schedule baselines, for 9 projects.	p. 76	NA 1.35	
<p>The CD-4 for the 3 remaining projects was completed in FY06 as follows: Y-12 Purification Facility completed FY06/Q1; Sandia Test Capabilities Revitalization completed FY06/2Q; and Sandia Weapons Evaluation Test Laboratory completed FY06/Q3.</p>					

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Goal	Measure (PAR)	STATUS	Description of Performance Target	FY05 PAR (page No.)	Crosswalk to FY06 Program Goal
	NA GG 1.36.04	Status: UNMET/OPEN	Maintain 335 Federal Agents at the end of the year.	p. 77	NA 1.36
	Not complete. In addition, not on track to achieve the 2006 target of 355; expect agent end-strength of approximately 347. Action Plan: Maintain systematic approach to advertisement, recruiting, screening, and qualification of agents to overcome fluctuations in class size and personnel losses.				
	NA GG 1.36.06	Status: UNMET/CLOSED	Limit annual average scheduled overtime hours to 900 overtime hours per agent.	p. 78	NA 1.36
	The target shortfall of 37 hours can not be made up. Because of forecast increase in agent overtime, this measure was cancelled in FY06.				
	NA GG 1.37.03	Status: MET	Conduct 9 "no-notice" emergency management exercises.	p. 80	NA 1.37
The last of 9 "no-notice" exercises was completed on February 24, 2006.					
	NA GG 1.39.03	Status: UNMET/OPEN	Ensure that 80 percent (cumulative) of Cyber Security reviews conducted by the Office of Independent Oversight Performance Assurance (OA) at NNSA sites result in the rating of "effective" (based on last OA review at each site over 2 Cyber Security topical areas).	p. 83	NA 1.39
	Not complete. Behind schedule and at moderate risk of not achieving the annual target of an OA rating of effective on a cumulative 57% of cyber security elements at NNSA sites (2Q 50% rated effective). While the target is at risk, Pantex was rated effective during the 2Q.				
	NA GG 1.39.06	Status: UNMET/CLOSED	Complete the processing needed to grant Q Security Clearance for federal and contractor employees in the NNSA complex, other than headquarters (does not include days for OPM or FBI background checks), in 85 annual average calendar days per applicant.	p. 84	NA 1.39
Target deemed unrealistic and not achievable. Target revised for 2006 to 110 days per applicant.					
Goal 2: Nuclear Nonproliferation					
	NA GG 2.40.02	Status: MET	Deliver 8 advanced technologies and operational systems (e.g. satellite payloads and seismic stations calibration data sets) to U.S. national security users, improving the accuracy and sensitivity of nuclear weapons test	p. 87	NA 2.40
	Due to an industry-wide recall of a class of space-qualified electronic hardware, the final payload delivery was made to the Air Force in FY06. Corresponding delays in space system schedules in the Air Force mitigated the impact of the late NNSA payload delivery on overall satellite launch schedule.				
	NA GG 2.41.02	Status: MET	Conduct 100 percent of 24 allowed Special Monitoring Visits (SMVs) to four Russian facilities HEU-to-LEU processing facilities to monitor conversion of 30 MT per year of HEU to LEU.	p. 89	NA 2.41
	The remaining visits necessary to meet the target of 100% of the allowed visits were completed in the 1Q of FY 2006.				
	NA GG 2.42.01	Status: MET	Achieve 32 percent progress (cumulative) towards refurbishing a fossil plant in Seversk, facilitating shut down of two weapons -grade plutonium production reactors.	p. 90	NA 2.42
	Complete. On track to fully achieve the 2006 cumulative target of 55% completion of the fossil plant at Seversk.				
	NA GG 2.45.01	Status: UNMET/CLOSED	Engage 8,200 former Soviet weapons scientists, engineers, and technicians.	p. 92	NA 2.45
	Target deemed unrealistic and not achievable. Target revised and rolled into the FY 2006 target 2.44.02.				
	NA GG 2.46.03	Status: MET	Secure 37 percent of 600 MTs of weapons -usable nuclear material.	p. 95	NA 2.46
	On track to fully achieve the 2006 cumulative annual target of blending down a total of 8.6 MTs of HEU to LEU.				
	NA GG 2.46.04	Status: MET	Convert 7.5 (cumulative) metric tons of Highly Enriched Uranium to Low Enriched Uranium.	p. 95	NA 2.46
	Completed. On track to fully achieve the 2006 cumulative annual target of blending down a total of 8.6 MTs of HEU to LEU.				
	NA GG 2.46.06	Status: MET	Achieve 98 (cumulative) Second Line of Defense (SLD) sites with nuclear detection equipment installed, along with 5 (cumulative) Megaports completed.	p. 96	NA 2.46
	Completed. On track to fully achieve the 2006 cumulative annual target of installations of radiation detection equipment at 114 sites (including 10 megaports).				
	NA GG 2.47.01	Status: MET	Complete 100 percent (cumulative) of the detailed design, and 25 percent (cumulative) of site preparation for the Pit Disassembly and Conversion Facility (PDCF).	p. 97	NA 2.47
	Completed. On track to fully achieve the annual target of completing a cumulative total of 24% of the design, construction, and cold start-up activities completed for the PDCF.				
	NA GG 2.47.02	Status: MET	Complete 100 percent (cumulative) of the detailed design, and begin site preparation and procurement for the mixed oxide (MOX) Fuel Fabrication Facility.	p. 97	NA 2.47

Goal	Measure (PAR)	STATUS	Description of Performance Target	FY05 PAR (page No.)	Crosswalk to FY06 Program Goal
Completed. On track to fully achieve the cumulative 2006 target of completing 17% of the facility and equipment design, construction, and cold start-up activities completed for the MOX facility.					
NA GG 2.47.05	Status: UNMET/CLOSED	Complete 100 percent (cumulative) of the detailed design, begin site preparation, construction and long-lead procurement for the Russian MOX Fuel Fabrication Facility.	p. 98	NA 2.47	
The FY05 annual target was incorporated into the broader cumulative measure for FY 2006 to include facility design, construction and cold start-up. Project is on track to fully achieve the cumulative 2006 target of completing 24% of the design, construction, and cold start-up activities for the PDCF.					
NA GG 2.64.01	Status: MET	Convert 44 (cumulative) targeted research/test reactors from HEU to LEU fuel.	p. 99	NA 2.64	
Complete. On track to fully achieve the 2006 cumulative annual target of converting 46 research/test reactors to LEU fuel. In October 2005, two research reactors converted to LEU fuel -- the VR-1 Sparrow at the Czech Technical University in Prague and the HFR Petten reactor in The Netherlands. The current cumulative total of converted reactors is 43. Two U.S. university reactors (University of Florida and Texas A&M University) are on schedule to convert to LEU in the summer. The Libya IRT-1 research reactor is scheduled to convert to LEU in FY06/4Q.					
NA GG 2.64.02	Status: MET	Repatriate 175 kilograms (cumulative) of HEU fresh and/or spent fuel from Soviet-supplied research reactors to Russia.	p. 100	NA 2.64	
Completed. On track to fully achieve the cumulative 2006 target of repatriating to Russia 232 kilograms of HEU fresh and/or spent fuel from Soviet-supplied research reactors. The current cumulative total of fuel repatriated is 160 kilograms. Three other spent nuclear fuel (SNF) shipments from Uzbekistan will take place this year. Fresh fuel shipments from Libya, Belarus, Vietnam, and Ukraine (Sevastopol and Kiev) are expected this year. We are also planning a shipment of fresh HEU from Germany. We are working closely with State Department and other organizations to develop strategies to ensure that countries are willing to return their Russian-origin HEU.					
Goal 4: Energy Security					
EE GG 4.01.05	Status: MET	Complete validation of an energy station that can produce 5,000 psi hydrogen from natural gas for \$3.60 per gallon equivalent (including co-production of electricity), untaxed at the station with mature production volumes (e.g., 100 units/year).	p. 106	EE 4.01	
An energy station producing 5,000 psi hydrogen from natural gas for \$3.55 per gallon of gasoline equivalent gge) has been validated. The station was operated for two years in Las Vegas, Nevada. This included more than 4800 hours of operation of the natural-gas-to-hydrogen system. Additional results were obtained from the DTE Energy in Michigan and from Penn State University. The target is now met.					
EE GG 4.01.10	Status: UNMET/OPEN	Demonstrate Fuel Cell demonstration vehicles' durability, projected to 1,000 hours based on voltage measurements.	p. 107	EE 4.01	
The target is partially met, and no further work will be performed on this specific target. An additional six months' operational data have been collected on several teams' fuel cells, and based on those data, the durability of the fuel cells being tested is projected at up to 800 hours. The Program is now moving on to developing and testing more robust fuel cell designs.					
EE GG 4.02.12	Status: UNMET/OPEN	Contribute proportionately to EERE's corporate goal of reducing corporate and program adjusted uncosted obligated balances to a range of 20-25 percent by reducing program annual adjusted uncosteds by 10 percent in 2005 relative to the program's FY 2004 end-of-year adjusted uncosted baseline (\$73,102K), until the target range is met.	p. 108	EE 4.02	
The program continues to try to accelerate costing of obligated balances. Uncosted obligations totaled \$69 million at the end of FY 2005, but roughly half of that was costed during the first quarter of FY 2006. The program has implemented a number of specific strategies to further reduce uncosted balances, including: planning solicitations at least one year in advance to better match RFP and award timing to the budget cycle; working closely with the PMC on mid-year adjustments to match project funding with recent spending patterns; anticipating and planning around large capital expenses, long-lead-time items, or unavoidable project down-time; and timing new projects so that their ramp-up in spending matches the availability of balances. (Strategies that depend on timing of some expenditures to occur early in the fiscal year can be hampered in years during which we operate under Continuing Resolutions.)					
EE GG 4.04.11	Status: MET	Complete a prototype dynamic window that will have a solar heat gain coefficient range of 0.05 to 0.6 and will meet American Society for Testing Materials (ASTM) durability standards for cycling in a high temperature, high	p. 113	EE 4.04	
DOE received a prototype deliverable from Rockwell in January 2006. While this prototype passed initial testing, it did not satisfy the durability requirement.					
EE GG 4.04.13	Status: MET	Contribute proportionately to EERE's corporate goal of reducing corporate and program adjusted uncosted obligated balances to a range of 20-25 percent by reducing program annual adjusted uncosteds by 10 percent in 2005 relative to the program FY 2004 end of year adjusted uncosted baseline (\$33.417K) until	p. 114	EE 4.04	
In order to maximize the period of performance for awardees in FY06, BT has used FY06 funds to make awards to recipients that were chosen based on solicitations made in FY05.					

Goal	Measure (PAR)	STATUS	Description of Performance Target	FY05 PAR (page No.)	Crosswalk to FY06 Program Goal
	EE GG 4.05.01	Status: MET	(Low Wind Speed Technology) Complete fabrication and begin testing advanced variable speed power converter. Test first advanced blade, incorporating improve materials and manufacturing techniques. Field test the first full-scale Low Wind Speed Technology prototype turbine. (Distributed Wind Technology) Complete prototype testing o f1.8 KW Small Wind Turbine, finishing the International Electrotechnical Commission suite of tests for acoustics, power, durability, and safety. (Technology Acceptance) Achieve 32 states with over 20 MW installed; 16 states with over 100 MW The missed target of 16 states was met by December 31, 2005.	p. 117	EE 4.05
	EE GG 4.11.02	Status: MET	Provide direct technical assistance to tribal nations including: four development workshops, two to three economic development projects, eight to ten "first steps" efforts, and six to ten feasibility studies, working toward goal of 100 MW of generation in Indian country by 2010. There is no need to take any further action to make up for the reduced number of economic development projects since the program decided to fund a greater number of Feasibility Studies and "First Step" projects.	p. 125	EE 4.11
	EE GG 4.11.07	Status: CLOSED	Recruit 500 additional retail stores, five additional utilities and ten additional manufacturers for the Energy Star program. Complete draft Commercial Window specification. Begin update of Residential Window specification. Expand coordination with all gateway activities. Based on stakeholder input, the Department will not be developing commercial window specifications.	p. 127	EE 4.11
	EE GG 4.13.02	Status: MET	Contribute proportionately to EERE's corporate goal of reducing corporate and program adjusted uncoded obligated balances to a range of 20-25 percent by reducing program annual adjusted uncodeds by 10 percent in 2005 relative to the FEMP Program FY 2004 end of year adjusted uncoded baseline (\$11,266K) until the target range is met. The program has taken actions which will help reduce the uncoded balances such as including the obligation of funds early in the year, the moving up of the decision date for distribution of ad hoc technical assistance funds, and the utilization of uncoded funds through special initiatives.	p. 128	EE 4.13
	EE GG 4.59.12	Status: MET	Contribute proportionately to EERE's corporate goal of reducing corporate and program adjusted uncoded obligated balances to a range of 20-25 percent by reducing program annual adjusted uncodeds by 10 percent in 2004 relative to the program FY 2004 end of year adjusted uncoded baseline (\$21,275K) until the target range is met. The Program is actively working to ensure that the uncoded obligations level is reduced to the appropriate level (20-25 percent) through a variety of means including the obligation of funds early in the year, reviewing performers' cash flow to make appropriate adjustments in funding and developing Annual Operating Plans in the spring in order to be able to obligate funds as soon as appropriations are final	p. 130	EE 4.59
	OE GG 4.12.01	Status: MET	Complete the manufacture a 200m superconducting cable for American Electric Power (AEP). Manufacturing of the AEP cable was completed October 28, 2005. The delay beyond September 30 was due to a bottleneck in the manufacturer's production line, that moved back the date for producing this cable.		
	OE GG 4.12.03	Status: UNMET/OPEN	Complete the manufacture of and factory testing on a 2MW / 2MWh zinc-bromine battery (ZBB) system (consisting of four 500kW / 500kWh units) for supplying extra power during peak load conditions at a utility substation. A truck-sized 500kW zinc bromine unit has been delivered to PG&E's DUIT facility in San Ramon, California, where it is undergoing extensive testing. At the request of the main financier, the California Energy Commission, the remaining units will not be moved to California until completion of the testing period, which will probably occur in the fall of 2006.		

Goal 5: World-Class Scientific Research Capacity

	SC GG 5.19.04	Status: CLOSED	Achieve 80 percent average operation time of the scientific user facilities (the Fermilab Tevatron and the Stanford Linear Accelerator (SLAC) B-factory (measured as a percentage of the total scheduled annual operating time). The actual FY2005 operation time for Fermilab Tevatron was 85 percent. The B-factory was shutdown in October 2004 due to a safety incident but reopened in late April of 2005. As a result of the accident, FY 2005 operation time for the B-Factory was 48 percent. The budget-weighted average achieved operation time for both facilities in FY 2005 was 73 percent. The current status for this metric is reported in the Performance Results Section under General Goal 5 as SC GG 5.19.4.		
	SC GG 5.21.07	Status: UNMET/OPEN	Complete fabrication of 60 microelectrode array for use as an artificial retina and insert prototype device into blind patient.		

Goal	Measure (PAR)	STATUS	Description of Performance Target	FY05 PAR (page No.)	Crosswalk to FY06 Program Goal
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The fabrication of the 60 microelectrode array to be used as an artificial retina has been completed. However, Federal Drug Administration (FDA) approval to implant the prototype device into blind patients was not achieved as initially planned. Action Plan: Discussions with the FDA are ongoing with the development of an enhanced 256 microelectrode device in FY 2006. The current status for this metric is reported in the Performance Results Section under General Goal 5 as SC GG 5.21.7

Goal 6: Environmental Management

EM GG 6.18.01 **Status: UNMET/OPEN** Dispose at the Waste Isolation Pilot Plant (WIPP) a cumulative total of 40,711 cubic meters of transuranic (TRU) waste. p. 165 EM 6.18.03

The program reports the negative variance results from delays throughout the complex including Idaho, Savannah River Site, Richland, and LANL. Idaho has met its goal of x m3 TRU waste disposed at WIPP required by the Settlement Agreement (the Batt Agreement). The Advanced Mixed Waste Treatment Facility continued to process waste at or near its design capacity. ACTION PLAN: DOE is working with Idaho and the other sites to meet its targets. Also, a complex-wide evaluation of the current targets that were originally set for this metric are being re-evaluated.

EM GG 6.18.02 **Status: CLOSED** Close a cumulative total of 20 liquid waste tanks. p. 166 EM 6.18

Treatment of liquid waste in tanks, and thereby closure of those tanks, has been limited due to the Waste Incidental to Reprocessing (WIR) lawsuit decision in July 2003, resulting in no tanks closed in FY 2005 for a cumulative total of 2 tanks closed overall. EM has evaluated its schedule priorities for closing liquid waste tanks across the complex and has provided a schedule based on reestablished priorities; the FY 2007 budget submittal to Congress listed no tanks to be scheduled for closure for FY 2006.

EM GG 6.18.05 **Status: CLOSED** Package for disposition a cumulative total of 107,989 kilograms of bulk plutonium and uranium residues. p. 167 EM 6.18

The Department has consolidated plutonium and uranium residues from across the complex to the Savannah River Site and updated its life-cycle estimate to 107,828 kilograms of residues to be packaged for disposition. The Savannah River Site is expected to complete all activity on this action by the end of FY 2006.

EM GG 6.18.07 **Status: MET** Complete remediation work at a cumulative total of 257 radioactive facilities. p. 167 EM 6.18.05

Goal 7: Nuclear Waste

RW GG 7.25.01 **Status: UNMET/OPEN** Complete draft License Application documents incorporating improvements in safety analysis and design. p. 169 RW 7.25

A draft license application will be available for Departmental review no later than March 2008. On July 19, 2006, the Department announced that it will submit a license application to the Nuclear Regulatory Commission no later than June 30, 2008.

